

**ONLY
99P**

AMIGA SHOPPER

From the makers of AMIGA FORMAT

HYPERBOOK

How this multimedia system can help you build stunning programs.....page 101

MUSIC

Get the low-down on the best synthesizer voicing softwarepage 104

COMMS

Can shareware comms programs beat their commercial rivals?page 119

DATABASES

The pitfalls of designing and analysing a questionnaire revealed.....page 89

LEARN C

Discover how to put the heart in a program with our continuing tutorial.....page 81



**BEGINNERS
START HERE**

All the jargon explained - guaranteed

PUBLIC DOMAIN WORLD

All the best bargains revealed in our comprehensive guide to free software

AMIGA ANSWERS

16 packed pages of help and advice from the experts start on page 49

FREE FRACTALS BOOK
If your guide to creating fractals isn't here, ask your newsagent.

ISSUE 6 • OCTOBER 1991 • YOUR SERIOUS AMIGA GUIDE

JOIN THE GRAPHICS REVOLUTION

First UK review
of the amazing
Video Toaster,
the Amiga
graphics
system to
beat them
all...Pages
34-44



**WIN! 20 COPIES OF
PEN PAL**

£1,600-worth of
top-class word
processor must be
won - see page 138

Future
PUBLISHING

Your guarantee of value



10

You deserve the best!

Now you can get the best... with PEN PAL!

A superb package, with immense power, to fulfil all your word processing requirements and... it includes a Database! It's all so easy to use, you probably won't need to refer to the extensive 250 page manual too often.

Whilst working, you can open up to four documents simultaneously (memory permitting), search and replace; cut, copy and paste; check your spelling with a 100,000+ word dictionary. You can import your favourite IFF/HAM graphics, from programs such as DPaint II or Clip Art files in various sizes and colours. You can automatically flow text around graphics in any Workbench compatible font (there are over 200 available styles), in different sizes and colours to suit your design... even as you type. All this from a word processor and... Much, Much, More!

As you can see, this is not just any ordinary word processor! Full Page View with position, edit and creation of graphic objects. Mail Merge using the built in database and forms designer. Creation of templates for complex reports, into which the database can be merged.

Operating with 32 fields per record, and 32,000 records per database with a fast sort of 1000 records in less than 5 seconds this is a *real* database.

Pen Pal requires an Amiga 500/1500/2000 or 3000 with a minimum of 1megabyte of available memory.

Pen Pal

When...you deserve the best!

£79.95

"...its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics..."

Amiga World...Jul. '90

"...without beating around the bush Pen Pal is very special..." - "There is little to fault Pen Pal and it deserves to do well."

Amiga Format...Dec. '90

"...I am extremely pleased with your product especially the Graphic Capabilities within the Word Processor. Having the Database on the same disk has made PEN PAL the best program I have..."

D.S.B., Plumstead, LONDON

"...Please let me tell you how amazed I am at how EASY IT IS TO USE PEN PAL. The manuals supplied are very informative and very clear..."

P.S.S., Clifton, NOTTINGHAM

"...A most excellent piece of software..."

E.P.H., Strathclyde, SCOTLAND

Gordon Harwood Computers
New Street
Alfreton
Derbyshire
DE5 7BP.

Dene Six,

Hello! I am writing this letter using "Pen Pal". Normally I do not correspond with computer companies, but this time I had to make an exception.

I have been looking for a program that I could use to create colourful letters, useful forms, and effective business graphics. I have purchased several Amiga word processors whose ads made great claims as to their capabilities. After using these programs, however, I found that the ads were only hype! I soon began to feel that no program would do what I wanted to do.

Recently I saw your program "Pen Pal" on my dealer's shelf. According to the package I thought that I might find it to be just what I needed. Although I purchased the program I was afraid that in reality it would not do everything the package claimed it would do. As soon as I got home from the computer store I fired up the program on my computer. Without even reading the manual I was soon creating documents with colour and pictures. As you can see from this letter, I have become pretty good at your program's graphic capabilities.

One pleasant surprise I had was to discover that Pen Pal has a built in database manager. I find that I use this database almost as much as the word processor. I have entered my Christmas mailing list, video tape library, and cooking recipes in it. I am designing my own Christmas cards this year I will use Pen Pal to print the mailing labels. I am designing my own Christmas cards in Pen Pal including some pictures I drew in a paint program. I plan to use Pen Pal's mail-merge feature to merge my mailing list names with the card to make each one personalized.

Thank you for making this program available.

Mr. Richard Goodwin

Pen Pal
Word Processor for the Amiga

Man's (and Woman's) Best Friend



Pen Pal Order Line

0773 836781

Pen Pal is also available from good computer stores everywhere!

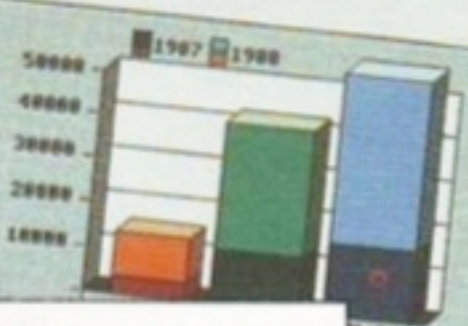
FINANCIAL REPORTING COMPANY

Financial Report to Division Managers

	1987	1988	1989	1990
OPERATING EXPENSES				
Cost of sales	288,178	28,188	382,358	26,378
Selling, general, and admin.	264,439	97,188	699,768	169,836
Research and development	46,549	14,815	89,667	26,289
Income from operations	312,384	112,531	585,386	285,298
Interest income	7,347	5,337	(21,813)	18,017
Income before taxes	383,848	117,868	574,378	211,531
Provision for taxes	113,588	51,888	217,588	91,188
Net Income	198,348	68,868	356,898	128,431
Net Income per share	58.17	58.86	58.31	58.11

... and they are better than expected!

In the first quarter of 1988 each division took advantage of strong economic conditions in their respective territories to post sales figures well in excess of their goals.



GORDON HARWOOD HARWOOD HARWOOD

Computers

Trade Distributors...

SDL

Precision Software

HB MARKETING

CENTRESOFT

Pen Pal is supplied into the UK through...

Gordon Harwood Computers New Street Alfreton Derbyshire DE5 7BP
Telephone: 0773 836781 Facsimile: 0773 831040

AMIGA SHOPPER AT A GLANCE

To help you find what you want quickly and easily, this is a cross-referenced list of all the products and subjects covered in this month's *Amiga Shopper*. The subjects covered in *Amiga Answers* are detailed on page 49. The page numbers given are for the first page of the article in which the product is mentioned.

A-Talk	121
ACC Assembler	121
Amiga Answers	49
AmigaDOS	76
AmiGIF	121
AMOS	95
Answers	49
Buying advice	137
C Programming	81
Caged Artist	104
Cliff's Code Conundrum	90
CMpanion	104
Coders Club	121
Comms	121
Competition	138
Databases	87
Early Learning Maths	113
Education	113
Excellence!	15
Four Seasons	121
Graphics	34
HAMsharp	121
Hyperbook	101
Ice	121
Intuimenu	121
JR-Comm	121
KindWords	15
Landing	121
Letters	11
Llmatron	124
Master Virus Killer	121
MED	121
MessyDOS	121
Module Processor	121
Multimedia	101
Music	104
NComm	121
News	6
Online! Platinum	121
Pen Pal	15,138
Personal Write	15
Programming	81,95,110
Protext	15
ProWrite	15
Public Domain World	124
QuickWrite	15
Reader ads	111
Scribble!	15
Shareware	124
Spell Book	113
Spellicopter	113
Sprite Designer	121
Startup-Sequence	76
Subscriptions offer	62
Talking Shop	11
TBAG	121
The Wall	121
Total Destruction	121
TransWrite	15
User Groups List	74
Video	34
Video Toaster	34
Virtual World	124
Voicing	104
Word processors	15
WordPerfect	15
Words	121
Wordworth	15
X-Or	104

WELCOME

Welcome to the October issue of *Amiga Shopper* – our biggest issue yet. This month, we concentrate on what is far and away the most commonly used piece of computer software: the word processor.

Because everyone needs one, the huge market has spawned a vast range of software. To encourage you to buy their product, software companies have added feature after feature to their programs. Spelling checkers are *de rigueur*, it's not unusual to have a built-in thesaurus and many programs can place graphics on the page, leaving them little short of DTP packages. All this leaves the user in a quandary. There are so many programs, many offering similar facilities, all claiming to be the best, so which one should you buy? We answer that question in this issue.

In one of the biggest group tests ever done in the Amiga world, starting on page 15, we examine no less than 11 leading programs. Amiga publishing expert Jeff Walker compares their facilities: he looks at the graphics features offered by the programs, how easy they are to use and the

way they handle printed output. This article will make your choice much easier.

Also in this issue we have a UK exclusive – the first review of NewTek's amazing Video Toaster. This device has been hitting the headlines since its US debut, and having played with it for the last few weeks it's easy to see why. For an extremely affordable price, the Toaster allows an Amiga access to the world of desktop video and 16 million colour graphics. It's a genlock (a device which allows you to add computer images to a video signal), but it's much more than that. Turn to page 34 to see what our graphics experts Gary Whiteley and Phil South made of it.

Finally, regular readers may notice that we've made a few changes to the appearance of *Amiga Shopper*. This has been done with one reason in mind – to make the magazine clearer and easier to read. I hope you like the new look, and agree that *Amiga Shopper* is now even better value.

Stuart Anderton

Editor

PUBLIC DOMAIN WORLD

There are thousands of Amiga programs which are available for little more than the price of a disk. And many more which allow you to try the software free before you buy. Each month in Public Domain World we examine the best of these programs and explain how to get hold of them. This month PD expert Phil South reviews:

MessyDOS • Module Processor • Intuimenu • Master Virus Killer • Words • ACC Assembler • Four Seasons • MED • Sprite Designer • HAMsharp • AmiGIF • Coders Club • TBAG • The Wall • Landing • Total destruction • Ice • Virtual World • Llmatron

ENTER THE PD WORLD ON PAGE 124

AMIGA ANSWERS

SIXTEEN PAGES DEVOTED EXCLUSIVELY TO ANSWERING YOUR QUESTIONS

Every month in *Amiga Answers* our panel of experts answer more genuine reader questions than any other Amiga magazine. This month we solve problems on:

Hard drives • Genlocks • Starting in business • Transferring files • RAM upgrades • Deluxe Music • Assembler • Printing pictures • Hardware faults • Date stamping • Saving files • PD animations • Converting graphics • Programming errors • Tone dialling • AmigaDOS commands • Music files • A2000 compatibility • ARexx • Reading the keyboard • Editing icons • and many, many more.
THE ANSWERS START ON PAGE 49

FOR A FULL LIST OF CONTENTS, TURN THE PAGE

Your guarantee of value

This magazine comes from Future Publishing, a company founded just six years ago, but which now sells more computer magazines than any other publisher in Britain. We offer:

Better advice. Our titles are packed with tips, suggestions and explanatory features, written by the best in the business.

Stronger reviews. We have a cast-iron policy of editorial independence, and our reviews give clear buying recommendations.

Clearer design. You need solid information, and you need it fast. So our designers highlight key elements in the articles by using charts,

diagrams, summary boxes, annotated photographs, and so on.

Greater relevance. At Future, editors operate under two golden rules:
• Understand your readers' needs.
• Satisfy them.

More reader interaction. We draw strongly on readers' contributions, resulting in the liveliest letters pages and the best reader tips. Buying one of our magazines is like joining a nationwide user group.

Better value for money. More pages, better quality: magazines you can trust.

Future
PUBLISHING

Home of Britain's finest computer magazines.

Amiga Shopper • Amiga Format • Amiga Power • New Computer Express • Public Domain • Commodore Format • 8000 Plus • PC Plus • ST Format • Your Sinclair • Sega Power • Amstrad Action • PC Answers • PC Format

NEW
PACK INCLUDES:
THE
SIMPSON!!!

CARTOON CLASSICS



AMIGA 1Mb. CARTOON CLASSICS PACK

This Great New Pack from Commodore offers everything for ALL THE FAMILY. A Great Computer with some Brilliant Games featuring the latest CARTOON HITS...

AMIGA A500* COMPUTER with
(Complete with Mouse, Leads, Manuals etc as listed * below)
A501 RAM UPGRADE, OFFICIAL COMMODORE 1.5Mb. Extra Memory Module

Plus CARTOON CLASSICS
THE SIMPSONS
Bart V The Space Mutants
CAPTAIN PLANET
and The Planeteers
LEMMINGS
The Great Delivery Game of 1991
DELUXE PAINT III
Art and Animation in one!

Only...
£372.99
BUY A SORCERORS PACK TOO!

MORE AMIGAS

AMIGA 1Mb. SCREENGEMS PACK

Std Amiga A500* & A501 1Mb. RAM upgrade

Back to the Future II
Shadow of the Beast II
Days of Thunder
Nightbreed & Deluxe Paint II

Great Value...
£372.99

AMIGA 0.5Mb. 'STAND ALONE' PACK

Standard Amiga A500* without any software package.

AMIGA 1Mb. STAND ALONE PACK (inc. A501)

Std Amiga A500* without software but with CBM A501 0.5Mb. u/g to 1Mb.



AMIGA CLASS OF THE 90's PACK

Std Amiga A500* & CBM A501 1Mb. RAM u/g

Pro-Write (WP)
Deluxe Paint II
Deluxe Print II
Infofile (D/Base)
Music Mouse
Amiga Logo

Let's Spell at Home
Talking Turtles
BBC Emulator
10 CBM Disks
Mouse Mat
Resource File

Only...
£469.99

AMIGA 1500 COMPUTER PACK

The supreme Amiga pack for Business, Home, Education and Leisure includes:
Central Processing Unit (CPU)...
1Mb. RAM, two 3.5" Floppy Disk Drives and eight Expansion Slots that will take all Amiga 2000 Peripherals. The HEART of your system.
Keyboard and Mouse...
Plug-in Keyboard with a Numeric Key Pad, 4 Cursor Keys. Two Button Amiga Mouse.

Plus some Superb Software!
♦ THE WORKS: Fully Integrated Word Processor, Spreadsheet, & Database
♦ DELUXE PAINT III - 'The New One!'
♦ THEIR FINEST HOUR - The Battle of Britain, POPULOUS - The Promised Lands, SIM CITY - Terrain Editor, and BATTLE CHESS - 3D Animated!

AMIGA 1500 CPU/KEYBOARD (As detailed) £649.99

AMIGA 1500 (As detailed) + 1084S Monitor £899.99

AMIGA 1500 (As detailed) + CM8833/II £885.99

STANDARD AMIGA A500

All our Amiga Packs are Genuine UK Spec. with the following standard items/features:
Amiga A500 Computer-512K RAM, Workbench System & Extras Disks, Full set of Amiga Manuals, 4096 Colours, Built-in Speech Synthesis, All Connecting Leads, 1Mb. Internal Disk Drive, Built-in TV Modulator, Kickstart 1.3, Amiga Mouse, Multi-Tasking, Notepad Easy to use basic Word Processor, Stereo Sound,
Remember this is the minimum configuration. Most of our packs contain EVEN MORE!!!

AMIGA CARTOON CLASSICS + CM8833 Mk II MONITOR

Including the necessary leads and dust covers for both Amiga and Monitor **£615**

AMIGA CARTOON CLASSICS + CM8833 Mk II MONITOR + STAR LC 200 COLOUR PRINTER

Including the necessary leads and dust covers for Amiga, Monitor & Printer **£815**

OTHER AMIGA PACKS ALSO AVAILABLE - Phone us for details.

BUY A SORCERORS PACK WITH ANY OF MERLINS AMIGAS AND SAVE EVEN MORE WITH SOME GREAT PRICES!!!

SORCERORS PACK 1
Quality Mouse Mat
Quality Thick Vinyl Amiga Dust Cover
Interconnected Joystick and Two Bank Disks in Library Case
The deal starts here!
£18

SORCERORS PACK 2
DATASTORM, DUNGEON QUEST, E-MOTION, GRAND MONSTER SLAM, SHUFFLEPUCK CAFE, NO GLOVES, POWERPLAY, THE HONDA, MICROPROSE SOCCER, TOWER OF BABEL
50 Great games with a retail value of £274.50
£25

SORCERORS PACK 3
Sorcerors Packs 1 & 2 Together PLUS...your choice of one Title from Merlins Software Selection
Great value pack!!!
Based on £24.99 rrp (See Listings), add difference if reqd.
Software not listed can be obtained too. PHONE US!
£45

AMIGA MONITORS



PHILIPS CM 8833/II
14" Stereo Medium Resolution Colour Monitor with Green Screen Switch AND FREE LEAD
12mths. on site maintenance
Great Value...
£244.99

COMMODORE 1084S
14" Stereo Med. Res. **£259.99**
Univ. Monitor Stand **£12.95**
Monitor Dust Cover **£5.95**
AV7300 TV Tuner **£79.95**
Tilt/Swivel Stand **£14.95**
(Only fits Philips CM8833 MkII!!!)

AMIGA PRINTERS

star REGISTERED DEALER



LASERPRINTER 4 **£999**
Fully HP-IIIP & Epson compatible, 300dpi, 1Mb. memory (expandable to 5Mb.), serial/parallel, 14 fonts, RISC processor, full 1yrs on site maintenance.

LASERPRINTER 4 STARSRIPT **£1199**
Specification as Laserprinter 4, with an addition of Stars Postscript, 2Mb. Memory, 14+35 fonts, Apple Talk interface. 1yrs on site maintenance.

LASERPRINTER 8's available to order

STAR PRINTER RANGE

LC 10 MONO **£159**
9 Pin Dot Matrix, 240 x 240dpi, 120/25cps
LC 24/10 MONO **£205**
24 Pin Dot Matrix, 360 x 360dpi, 180/60cps
LC 200 COLOUR SPECIAL OFFER...£199
With a FREE Dust Cover OR Printer Stand!!!
9 Pin Dot Matrix, 240 x 240dpi, 185/40cps
LC 24/200 MONO **£249**
24 Pin Dot Matrix, 360 x 360dpi, 120/55cps
LC 24/200 COLOUR **£CALL**
9 Pin Dot Matrix, 240 x 240dpi, 120/25cps
XB 24/10 COLOUR NEW LOWER PRICE £379
24 Pin Dot Matrix, 360 x 360dpi, 240/80cps,
This is a true business machine capable of printing true letter quality at 48pin, huge 27K buffer exp. to 187K, with 12mth on site maint.

CITIZEN PRINTER RANGE
120D+ MONO **£139**
9 Pin Dot Matrix, 240 x 240 dpi, 120/25cps
124D MONO **£205**
24 Pin Dot Matrix, 360 x 360 dpi, cps
SWIFT 9 MONO **£199**
9 Pin Dot Matrix, 240 x 240 dpi, 160/40cps
SWIFT 9 COLOUR NEW LOWER PRICE £219
9 Pin Dot Matrix, 240 x 240 dpi, 120/25cps
SWIFT 24 MONO **£289**
24 Pin Dot Matrix, 240 x 240 dpi, 120/25cps
SWIFT 24 COLOUR NEW LOWER PRICE £309
24 Pin Dot Matrix, 240 x 240 dpi, 120/25cps

FREE WITH EVERY PRINTER (Marked * thus) from MERLIN EXPRESS- LEAD FROM YOUR PRINTER TO YOUR AMIGA!!!

MERLIN WORD PROCESSOR AND PRINTER SUNDRIES PACKAGE!!!

Available with any Amiga or Printer purchased from Merlin
☆ PEN PAL...Brilliant Word Proc. with Database/Graphics
☆ 500SHEETS OF 11x9.5 PLAIN 80 GSM MICRO PERFOR FAN FOLD CONTINUOUS PAPER
☆ 1-TOP QUALITY THICK PRINTER DUST COVER
☆ 1-UNIVERSAL 2 PART PRINTER STAND
☆ 1-SPARE MONO RIBBON
£99.99
or just £24.99 without Pen Pal W/P Software

AMIGA PERIPHERALS

COMMODORE A590 HARD DISK DRIVE
..... 20Mb. Std Unpopulated **£279**
..... 20Mb. Populated to 1Mb. **£329**
..... 20Mb. Populated to 2Mb. **£369**

OFFICIALLY UPGRADED BY COMMODORE NOT A CHEAPER THIRD PARTY U/GRADE!

COMMODORE 1011 3.5" 2nd DRIVE
For all Amigas: 500/1000/ **£79.95**
1500/2000, 880K Formatted Capacity, No external power supply required.

CUMANA 3.5" CAX 354 DRIVE **£64.95**
Enable/Disable switch, Throughport, **£59.95**

MERLIN 3.5" DISK DRIVE **£59.95**
3.5" Second Disk Drive, Enable/Disable Switch, Slim Design, 880K Formatted Capacity. No external power supply is needed. Throughport. THIS IS ONE OF OUR BEST SELLERS & GREAT VALUE!

COMMODORE 1352 MOUSE **£39.95**
Commodores Own!!!

NAKSHA MOUSE **£29.95**
Amiga/ST switchable, high resolution 280dpi, no additional mouse drivers required, includes mouse holder and mouse mat. E. A. Discount voucher!!!

COMMODORE A501 0.5Mb. **£49.95**
OFFICIAL AMIGA RAM UPGRADE

MIDI-MASTER INTERFACE **£29.95**
1 Through Port, 1 In & 3 Out

RENDALE 8802 GENLOCK **£189.95**
Semi professional Genlock device. Now you can mix both video and computer sources. Ideal titling to high standards.

NAKSHA A500 HAND HELD SCANNER
Coming soon!! Look out for this one!!!

AMIGA SOFTWARE

GODS The Bitmap Bros. at their best! Greek Gods battle against monsters!!! **(£25.53rrp) £19.99**
TOKI Great Platform Arcade Game. 300 screens in fantastic cartoon style! **(£24.99rrp) £19.99**
EYE OF THE BEHOLDER Dungeon Master style game. Great graphics! **(£30.99rrp) £26.99**
PGA GOLF TOUR One of the most realistic golf simulations around! **(£25.99rrp) £19.99**
TEENAGE MUTANT HERO TURTLES A favourite with every youngster! **(£25.53rrp) £18.99**
DUCK TALES Become 'The Richest Duck in the World' in a global race! **(£25.53rrp) £28.99**
ROBOCOP II Based on the film of the same name with the same action!!! **(£25.53rrp) £23.99**
F19 STEALTH FIGHTER Forget the rest...THIS IS THE SIMULATOR!!! **(£29.99rrp) £23.99**
HOLLYWOOD COLLECTION 4 GAMES IN ONE! Batman, Robocop I, Ghostbusters II, Indiana Jones. **(£29.99rrp) £23.99**

SERIOUS SOFTWARE
FUN SCHOOL 3 Choose under 5's, 5-7's or 7 & over. Educational Fun! **(£24.99rrp) £19.99**
SUPERBASE PERSONAL 2 Keep records with this easy to use & powerful Database **£29.99**
DISNEY ANIMATION STUDIO Outstanding animation for your Amiga. **(£99.99rrp) £81.99**
PHOTON PAINT II Paint prog. IFF/ANIM formats, 4096 colours, etc. **(£89.95rrp) £29.99**
PEN PAL Word processor with database built-in and graphics handling. **(£99.95rrp) £79.95**

MERLIN

EXPRESS LIMITED

GREAT VALUE, THAT'S THE MAGIC OF MERLIN

STOP PRESS!!!

CDTV
A NEW MEDIA REVOLUTION...
You get... THE NEW CDTV PLAYER with full infra red remote control plus leads to TV and audio system and an introductory 'welcome disc' plus a voucher for Lemmings & Hutchinsons Encyclopaedia

£Phone
FOR DETAILS AND LATEST PRICES OF CDTV!

AMIGA ADD ON CD ROM PLAYER AVAILABLE SOON!! Phone for latest news!!

Listed below are just a few of the titles available for CDTV on Compact Disc.

TIME TABLE OF SCIENCE & INNOVATION	ADVANCED MILITARY SYSTEM
TIME TABLE OF BUSINESS POLITICS	MUSIC MAKER
NEW BASICS ELECTRIC COOK BOOK	ILLUSTRATED HOLY BIBLE
THE WORLD VISTA ATLAS	MY PAINT
ALL DOGS GO TO HEAVEN Electric Crayon	PSYCO KILLER
CLASSIC BOARD GAMES	WRATH OF THE DEMON
AMERICAN HERITAGE ORCHARD	BATTLESTORM
COMPLETE WORKS OF SHAKESPEARE	SIM CITY
BARNEY BEAR GOES TO SCHOOL	A BUN FOR BARNEY
FUN SCHOOL 3 (For the under 5's)	DEFENDER OF THE CROWN
WOMEN IN MOTION (Adults Only)	INDOOR PLANTS
TREES AND SHRUBS	GARDEN PLANTS
FRUITS, VEGETABLES & HERBS	CD REMIX
HOUND OF THE BASKERVILLES	AND...Lots More To Come!!!

Listed below are titles available for CDTV on Floppy Disk using an add on 3.5" Disk Drive.

DUNGEON MASTER	SPACE QUEST 3	NAM 1985-75
ROCKET RANGER	VENUS - The Fly Trap	GOLDEN AXE
SPEEDBALL II	CHAGS STRIKES BACK	IMMORTAL
ROBOCOP II	EYE OF THE BEHOLDER	AWESOME
LEMMINGS	DEFENDER OF THE CROWN	GRAVITY
GODS	COHORT - Fighting for Rome	CRITUS
BRAT	ELVIRA - Mistress of the Dark	TETIS

ALL Merlin Prices Include VAT @ 17.5%

ORDERING

Just telephone our 24 Hour Order Hotline using your Access/Visa Card, or, send a cheque/postal order with your requirement details (cheques need clearance unless issued by a Bank/Building Society on your behalf).

DELIVERY

Small items are despatched by post FREE to all UK Mainland addresses. Hardware is despatched by courier service (up to 25Kg) as follows: NEXT WORKING DAY...add £7.50 to order. TWO WORKING DAYS...add £6, for SPECIAL SATURDAY DELIVERY...add just £12 (Goods are normally despatched same day as order, unless otherwise discussed at the time).

WARRANTY

Hardware proving faulty within 30 days will be exchanged for NEW. After 30 days and within 12 months from purchase, faults will be rectified by the relevant manufacturers' repair agent and returned to you by courier. Software and small items carry various warranties, please ask for details.

COLLECTION

Merlin Express Limited are predominantly a mail order company, but we welcome customers to our trade/collection counter who wish to pick up goods from us. Why not pay us a visit, we are always pleased to help you with your enquiries.

BFPD & EXPORT

Merlin are happy to supply BFPD and export markets for which VAT is normally deductible. Delivery charges vary from UK rates and, as products carry UK warranties only, faulty items are to be returned to Merlin by the customer and re-delivery charges will apply.

PLEASE NOTE

Whilst every effort is made to ensure information in this advert is correct, you should always confirm any offers, prices, availability etc. prior to placing your order. We endeavour to supply goods as shown and will ONLY change details should it be made necessary by our suppliers etc. As our advertising is booked so far in advance Merlin therefore reserve the right to alter product specifications, withdraw any product/offer/service or update prices (and that can be up OR down), without prior notice. Merlin guarantee never to supply anything that has been subject to change without you, the customer, being informed of and agreeing to that change. Please ALWAYS confirm details PRIOR to placing your order.

E&OE



MERLIN EXPRESS LIMITED

UNIT 42, THE ROPEWALK INDUSTRIAL CENTRE,
STATION ROAD, TRISTON, DERBYSHIRE DE7 6WZ

Telephone 0429 541432 FAX 0429 541431

24 ORDER LINE **TELEPHONE: 0602 441442** **VISA**

INSIDE THIS ISSUE

AMIGA SHOPPER

Issue 6 October 1991

Editor: Stuart Anderton

Art Editor: Jackie Spanton

Production Editor: Ian Wrigley

Technical Editor: Cliff Ramshaw

Consultant Editors: Jeff Walker,

Mark Smiddy, Phil South

Contributors: Sam Littlewood,

Jon Bates, Pat Winstanley,

Paul Andreas Overaa,

Gary Whiteley, Jolyon Ralph,

Stewart Russell, Mick Draycott,

Jason Holborn

Ad Manager: Margaret Clarke

Senior Ad Sales Executive:

Shaun Lancaster

Ad Production: Deborah Cook

Illustrations: Kev Sutherland,

Jolyon Webb

Photography: Ashton James

Production Technicians:

Simon Windsor, Chris Stocker,

Jerome Clough

Promotions Manager:

Michele Harris

Publishers' Assistant:

Tamara Ward

Circulation Director: Sue Hartley

Group Publishing Director:

Greg Ingham

Printed by Thamesmouth Printing

News Trade Distribution -

UK: Future Publishing 0225 442244

Worldwide: MMC Ltd 0483 211678

This magazine is copyright © 1991

Future Publishing Ltd. No part of

this magazine may be reproduced

without written permission. We

welcome contributions for

publication but regret that we

cannot return any submissions.

Any correspondence will be

considered for publication unless

specifically stated otherwise.

Editorial

30 Monmouth Street,

Bath BA1 2BW

Tel: 0225 442244

Fax: 0225 446019

E-mail:

amshopper@cix.compulink.co.uk

Advertising

Rayner House, 23 Higher Hillgate,

Stockport SK1 3ER

Tel: 061-474 7333

Fax: 061-476 3002

Subscriptions

The Old Barn, Somerton TA11 7PY

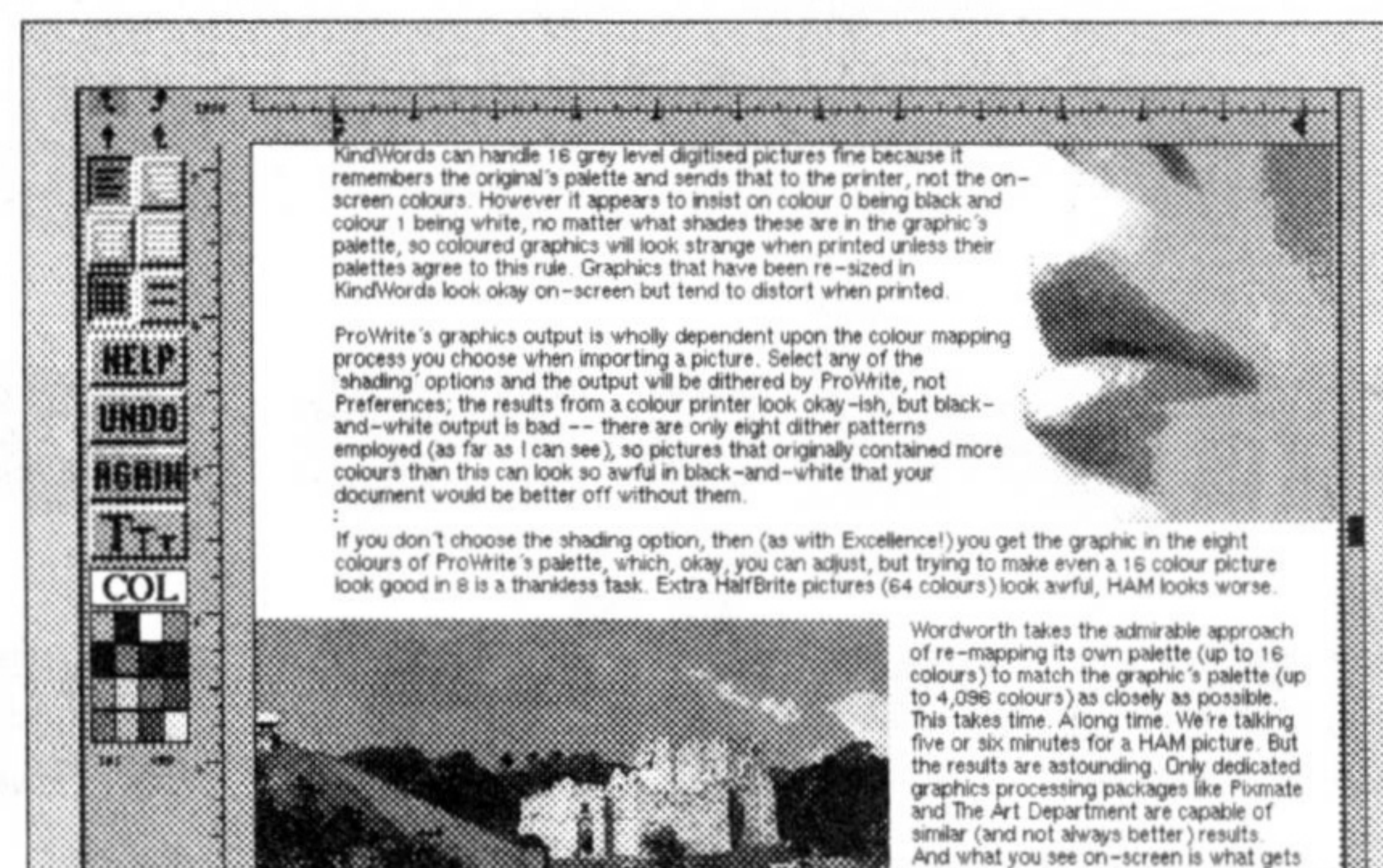
Tel: 0458 74011

News

New software, new hardware, everything that's happening in the Amiga world is here.

Talking Shop

Talking Shop is the premier forum for Amiga users with something to say.



Which word processor?

In the most comprehensive word processor review ever printed, we put no less than 11 packages under the microscope, namely *Excellence!*, *KindWords*, *Pen Pal*, *Personal Write*, *Protext*, *ProWrite*, *QuickWrite*, *Scribble!*, *TransWrite*, *WordPerfect* and *Wordworth*. Discover which has the best features and which one will most suit your way of working.

Amiga Answers

A new-look Answers section solves even more of your problems. Sixteen pages of expert advice on real-life difficulties encountered by you, the readers.

Subscriptions offer

Take advantage of this unbeatable offer to have *Amiga Shopper* delivered directly to your home.

User Groups List

Get in touch with other Amiga owners in your area by joining a club. We list dozens of user groups across the country.

Learning AmigaDOS

Customise your Startup-Sequence and push your Amiga's power to the limits.

C Programming

Putting the meat into a program. Discover how our example program *ADraw* actually works.

Setting up a database

A practical tutorial on designing a questionnaire and analysing the results on the Amiga.

Cliff's Code Conundrum

No new problem this month, since we have a major programming competition in your free Fractal Supplement. But here are the winners of a previous Conundrum.

6

Learning AMOS

News, advice, and example programs to run with the Amiga's most popular programming language.

Multimedia made easy

Discover how you can create stunning multimedia applications simply and easily with Gold Disk's multimedia authoring program, *Hyperbook*.

Shaping sounds

Designing custom sounds for a synthesizer is an ideal task for the Amiga. We test out and compare *CMpanion*, *Caged Artist* and *X-Or*.

Reader ads

The best way to buy and sell used Amiga equipment.

Learning for fun

A selection of the best and most interesting educational software on test, including *Spellicopter*, *Early Learning Maths* and *Spell Book*.

Software for comms

We compare *Online! Platinum* and *A-Talk* with shareware programs *JR-Comm* and *NComm* - with interesting results.

Public Domain World

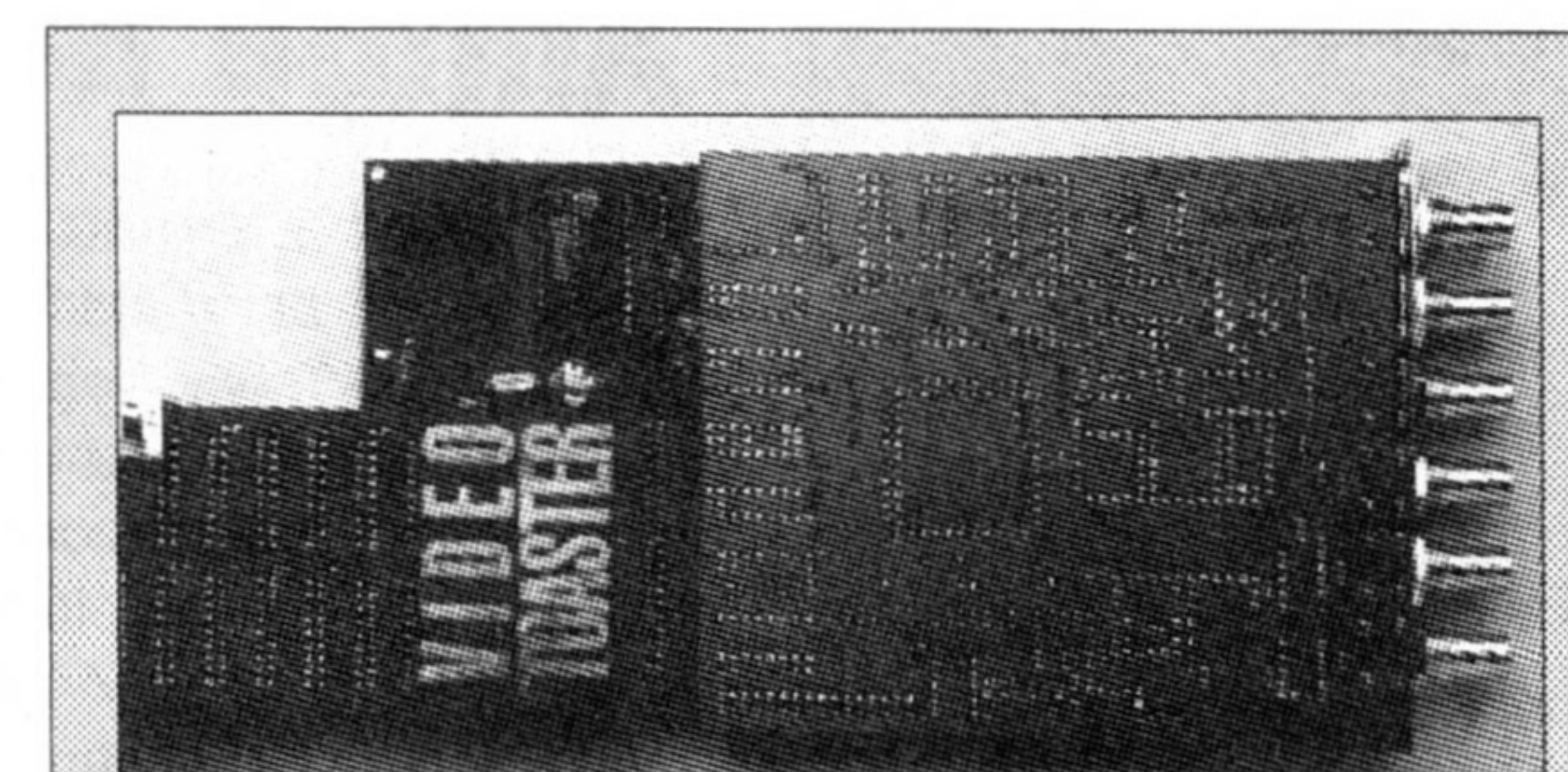
The latest in public domain and shareware software on test. Including this month: *MessyDOS*, *Module Processor*, *Intuimenu*, *Master Virus Killer*, *Words*, *ACC Assembler*, *Four Seasons*, *MED*, *Sprite Designer*, *HAMsharp*, *AmiGIF*, *Coders Club*, *TBAG*, *The Wall*, *Landing*, *Total Destruction*, *Ice*, *Virtual World* and *Llamatron*.

Buying advice

Don't get caught out when buying software or hardware - follow our simple rules for purchasing safely.

Win 20 copies of Pen Pal

No less than £1,600-worth of word processor must be won this month. Just answer the questions and an £80 program could be yours.



The amazing Video Toaster

It's a graphics board, it's a frame grabber, it's a genlock... it's a complete video production kit in one board - and it's cheap! In the first British review of NewTek's stunning product, we take an in-depth look at its facilities.

In Brief

TURNING JAPANESE

CDTV is swinging into action in a school in Derbyshire, where it is being used to teach students Japanese as part of the Japan World Project. The project will be available to all schools in Derbyshire throughout the autumn.

DOUBLE IMAGE

The Golden Image Hand Scanner is now in its second incarnation.

Although the hardware remains the same, the bundled software, *Migraph Touch-Up*, has now been upgraded to version 1.1; with the whole package being renamed as the Mark II Hand Scanner.

An upgrade for existing users is available for £15. A price for the package as a whole is yet to be finalised, but will be between £155 and £160. Golden Image ☎ 081-518 7373.

NEW LASER

Desktop publishing enthusiasts will be interested to learn of the new VM800 laser printer from Fujitsu.

The printer operates in HP Laserjet III emulation, printing eight A4 pages per minute. Included as standard are seven bitmap fonts and eight scalable typefaces. Further fonts can be obtained by the addition of forthcoming cartridges. The VM800 costs £1,426. Fujitsu ☎ 081-573 4444.

MORE MATHS

LCL, the educational software house, has released a new version of its *Micro Maths* package this month.

The package adheres to the GCSE syllabus, making use of sound and graphics to retain the students' interest. Those owning the old version can upgrade for £5; the program costs £24 for new users. LCL ☎ 0491 579345.



The European Computer Entertainment Show: a no go area.

London show is no go

IN A SUDDEN change of plan, the European Computer Entertainment Show, scheduled for this weekend (September 7) will not be open to the public this year.

The Earls Court event, which last year attracted thousands of computer owners to see the latest games and hardware, has been made trade only because of the decline in interest from the software companies. EMAP, the firm organising the show, is urging people to stay away to avoid disappointment.

Meanwhile, the November World of Commodore show, sponsored by *Amiga Format*, is all set to go ahead as planned. Despite the lack of enthusiasm of software companies for the ECES, they are expected to be at World of Commodore in force. The show will also feature far more applications software and innovative hardware than the cancelled games-only event.

The World of Commodore Show runs from November 15-17 at Earls Court 2 in London.

Commodore pushes multimedia centres

IN AN ATTEMPT to consolidate its lead over Philips and other competitors, Commodore has announced its commitment to opening a nationwide network of 12 multimedia centres over the next three years.

With CDTV already launched, and the current success of the Amiga in video, Commodore is no doubt keen to gain what share it can of the burgeoning multimedia market before the UK launch of Philips' higher specified CD-I multimedia machine. Clearly the company is making a substantial financial investment towards this end. The centres are planned to be formed in partnership with existing independent retailers, but will be devoted entirely to Commodore multimedia 'solutions'. The concept is

similar to that of the high-street AppleCentres, and should link Commodore's name to multimedia in the minds of the public.

PRAGMATIC

Of course, the more pragmatic aim is to sell kit. To this end, Commodore intends to begin a series of training courses starting in September which will familiarise sales people with the technology and enable them to analyse customers' needs and suggest appropriate ways of satisfying them. Customers are expected to range from specialist developers right up to corporate users. The entire Amiga range plus all relevant peripherals will be stocked, along with Commodore's CDTV system.

The training courses are not only open to dealers participating in the multimedia centre scheme, but to anyone who is interested. In this case, the price of such training will depend on the nature of the dealer in question. Training will take place at a special facility at Milton Keynes, or may be given on-site.

PLATFORMS

Speaking of 'platforms' other than those produced by Commodore to produce 'true multimedia solutions', Terry Cooke, Commodore's national sales director, likened it to "teaching a dog to walk on two legs, because whilst you can probably do it, the solution takes an awful lot of money and patience." With its frequent use of the phrases

'platforms' and 'multimedia solutions' Commodore is making an attempt to gain credibility in the high-powered world of business, where computer systems are referred to as anything but 'computer systems'.

In contrast to this is Commodore's definition of multimedia: "a method of designing and integrating computer technologies on a single platform allowing a user to input, create, manipulate and output text, graphics, audio and video, utilising a single user interface." It seems strange that the emphasis should be on the designing of machines, rather than on the machines themselves or the information they are to process. Such mild marketing confusions are not unknown to Commodore.

Amiga access enabled

THE TOUCAN LEARNING Tray, for severely disabled computer users, is now being marketed for the Amiga by Think Limited.

Once the Tray is connected, users can communicate with standard Amiga programs via a selection of standard switching input devices, the response of which can be tailored according to the program in use. In this way, people such as cerebral palsy sufferers can use the Amiga to its full. The board is manufactured by Toucan Communications, and marketed with Amiga software for £750 by Think Limited.

This is the same company which markets the Alfred Robotic Arm, which is currently being sold with a rotary table for the special price of £468.83. Think Limited can be contacted on ☎ 021-384 4168.

News compiled by Cliff Ramshaw

Put your foot to the floor

IT'S ROCKET FUEL time for A500 owners with the introduction of a new accelerator board from MicroBotics.

The board comes with a Motorola 68030 processor, clocked at a variety of speeds from 16MHz upwards. An optional maths co-processor can also be fitted, either synchronised with the CPU or clocked from its own oscillator for speeds of up to 60MHz.

The board fits inside the A500 (although it will also fit an A1500 or A2000) in the 68000 processor slot, which is itself relocated on the board. It is possible to switch between the two modes.

A 32-bit processor such as the 68030 works best with 32-bit memory. Such a board is available from MicroBotics, and attaches to a head connector on the accelerator board. The memory board will hold either 2Mb or 8Mb.

A 25MHz card costs £299. From ZCL ☎ 0543 414817.

Fonts on tap

THOSE AMIGA DESKTOP publishers who look with envy at the variety of PostScript fonts available for the Mac and PC can now get in on the act themselves with *Mloutline* from Mirror Image Productions.

Mloutline takes PostScript Type 1 printer fonts and converts them into an outline font suitable for use in Gold Disk's *Professional Draw* structured drawing program. From there, it is possible to manipulate and edit the fonts for the creation of specialised logos and so forth. As it can be difficult to obtain a particular character in a font, *Mloutline* has the ability to generate a chart of a font's complete character set, along with the key combinations necessary to access each character.

Mirror Image Productions also sells *Mlfont*, a sister program to *Mloutline*, which will convert PostScript fonts to screen fonts for use in *Professional Page*. *Mlfont* costs \$105; *Mloutline* costs \$124.95. Both are currently only available from Mirror Image in Canada ☎ 010 1 416 495 7469.

Audition passes

SUNRIZE'S AUDITION 4 sound editor program, announced in *Amiga Shopper* issue three, is now available.

As well as the many features expected of a sample editor, the program has the facility to create sequenced loops and preview effects before applying them to a sound. Everything is displayed graphically under Intuition, making it easy to zoom in on mouse-selected portions of sound for precision editing.

The program is written in assembly language, producing a compact (about 100K) and fast product. It costs £49.99 and is distributed in the UK by HB Marketing ☎ 0753 686000.

Popular US MIDI software gets an overhaul

DrT's helpline aids musicians

DISTRIBUTION OF THE popular range of music software from Dr T's has been awarded to the UK company Zone Distribution. The company has set up a technical help line for users of Dr T's software.

Existing users of Dr T's products can register with Zone in order to benefit from this service, providing that they can prove that they have a legitimate copy of the software. The help line is manned Monday to Friday between 11am and 4pm, on ☎ 081-699 8074.

Coinciding with this is a new release and a product update from Dr T's. The new product is *X-Or*, a patch editor/librarian which has been available for some time on the ST and PC. Using the program, it is possible to edit sounds for over 90 synthesizers by a system of synthesizer profiles which are continuously being updated by Dr T's. Most synths come with a tiny LCD screen and a limited set of keys for sound editing; using a computer to display parameters in the form of graphical sliders and draw envelopes and sound objects can greatly ease the process of editing. As well as this, the program enables the copying of patches from one synth bank to another, and the playing of MIDI files while in the midst of editing. *X-Or* costs £219.

The update is for *KCS*, the Amiga sequencing package, now at version 3.5. It

boasts a re-designed front panel and many new features, including the facility to play IFF samples, 48 track sequencing, real-time graphic editing, 16 stave transcription to screen and printer, and synchronisation to SMPTE through Dr T's Phantom Synchroniser (a £249 hardware add-on giving SMPTE

read/write information).

KCS 3.5 costs £279.

Alternatively, users of *Music-X*, *Master Tracks Pro* or *Bars and Pipes* can trade in their old programs against *KCS* for £149.

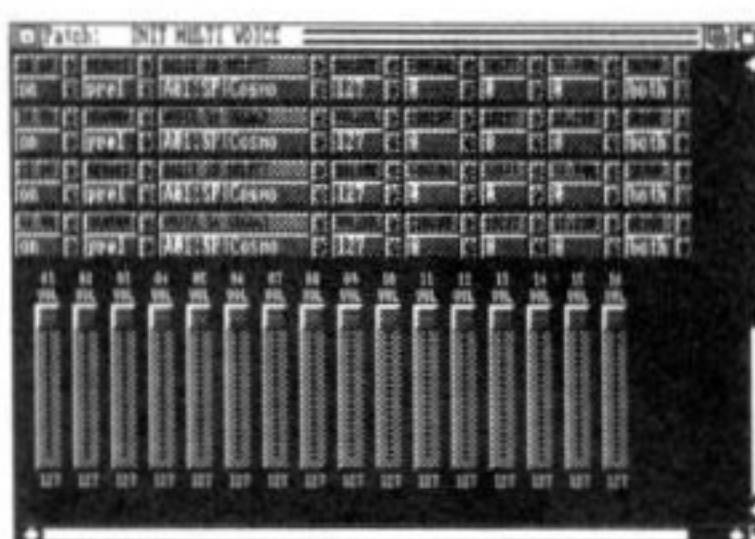
Owners of *Tiger Cub*, *MRS* and *Sequencer 1* can do the same for £179.

Also coming under the wing of Zone Distribution is

the song library from Trycho Tunes. This consist of disks containing MIDI files for popular hardware and software sequencers and drum machines. Prices decrease depending on the size of the order, but a single song costs £7.95. Songs can be bought in related packs of three and ten for £12.95 and £39.95 respectively. As well as current hits, the library boasts a large selection of golden oldies.

Zone has also taken over the distribution of the MIDIman range of products, which consists largely MIDI and SMPTE hardware units for the professional musician. Zone Distribution is on ☎ 081-766 6564.

• *X-Or* is reviewed on page 104.



X-Or from DrT: new version out.



A day at the races with the Evesham Micros team, seen here hunkering down after a hard drive (sorry) in the Dunlop Rover GTi challenge at Donington Park last month. On the left is race winning (and championship leading) driver Dave Loudon, on the right Evesham Micros' boss Richard Austin, who came in ninth.

In Brief

SCALA UPGRADED

Scala, the presentation package, has just been upgraded to version 1.1.

When reviewed in *Amiga Shopper* Issue two, the package received a rating of 82 out of 100 from Gary Whiteley, who predicted a "bright future" for it. Now the package makes an even more attractive proposition. Among its numerous new features are AReXX support, real-time anti-aliasing of text and brushes and real-time buffering of ANIMs.

The new package costs £264.38 from Silica Systems ☎ 081-309 1111. Existing users of *Scala* can obtain a free upgrade by sending their original master program disk to Silica at 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX.

PD FOR FREE

Neural Images PD will give away a free disk of PD software to anyone who sends the company an SAE. Neural Images PD ☎ 0429 263508.

PRINTER PRICE CUT

If you were considering buying the NEC P70 printer, you will be pleased to know that its price has just been dropped. Previously available for £799, the printer can now be obtained for a paltry £699.

The printer is a 24-pin wide carriage model, capable of taking A3 landscape paper and printing up to 136 columns of text. Other features include an 80K print buffer and 10 resident fonts. NEC can be contacted on ☎ 081-993 8111.

OVER THE TOP

Cardboard overlays which fit over the top of the Amiga keyboard allowing you to make notes of common commands and shortcuts are available from Silverbird, priced at £5.00 for five. Silverbird ☎ 05255 2614.

In Brief

PANASONIC PRINTER APPEARS

Another printer hits the market this month, this time from Panasonic. The KX-P1170 is a 9-pin model costing £233.83.

As with most printers in the range, it offers both draft and near letter quality print, at a claimed maximum speed of 192 characters per second in any of four fonts. As well as continuous or single sheet paper, the printer can handle envelopes, labels and multi-part stationery. It comes with a 6K buffer as standard, with an extra 32K available as an option for £76.38. Interface to the Amiga is via the parallel port, or with an optional RS-232C connection to the serial port. Panasonic can be contacted on ☎ 0344 853915.

VIRAL WARRIORS

Each year sees more and more viruses, each more sophisticated than those before.

A new organisation has been formed by businesses and a number of individuals to combat this menace. Called the Virus Advisory Service, it offers free advice to those wanting to know more about these small but devastating programs. The service offers information both on prevention of infection and cure of any existing problems. The Virus Advisory Service is on ☎ 0705 851645.

SAMPLER SOURCE

We would like to point out that the Sound Trap 3 sound sampler, as reviewed in issue five, is available direct from the manufacturer, Omega Projects ☎ 0925 763946.

NAME GAME

Yet another firm is being mistaken for crashed company SCS. This time it's Start Computer Systems in Sunderland. Why do so many northern companies have such similar names...?

Learning to tickle the digital ivories

THE FIRST KEYBOARD teaching package is about to be launched by Nintendo for the Amiga, based around a stand-alone single keyboard with over 100 instruments and effects plus MIDI. However the smart part is the interface and software which will teach you to play the instrument, taking you through to a high standard of competence.

The Miracle Piano Teaching System actually customises itself to your strengths and weaknesses as you

progress through the 300-plus lessons and repertoire of over 50 songs. It teaches the user to play the keyboard through a series of on-screen tutorials, games and computer-accompanied tunes.

Many of the skills that you need to learn – note and rhythm recognition, fingering and so on – are taught using screens that make full use of the Amiga's graphic capability and could have been taken from any arcade game.

The keyboard has 4 octaves of velocity-sensitive keys, full stereo sound and comes complete with a sustain foot pedal. Since it is multi-timbral it can flesh out the tune you are learning with a full-blown accompaniment. Advanced lessons take the use of sustain and touch sensitivity into account. Although the keyboard has MIDI capabilities, it uses a separate interface to communicate with the software. Mindscape/Nintendo ☎ 0444 246333.

CSA's add-on provides 25MHz 68040 power '040 card gives blistering speed

WITH A LEAP and a bound your Amiga can be transformed into a soaring 68040 supercomputer with a new accelerator board from CSA, which also makes the Mega Midget Racer 68030 board.

The 68040 is one of the biggest and most powerful processors in production; even clocked at 25MHz, as it is in this case, it gives a performance of 20 MIPS (million instructions per second). The board, named the 040 Magnum, provides more than simple acceleration, however: it is almost a computer in its own right. It comes with a SCSI interface and its own parallel and serial ports, all linked directly to the 68040 bus for blistering speed (they are, unfortunately, unusable by the 68000).

The board comes with 1Mb of shadow RAM, which may be used to contain Kickstart 2.0 (which has an 040 mode) as well as 512K-

worth of customisation programs. Bytes and Pieces, which is distributing the board in the UK and Europe, says that in the unlikely event that Commodore has not begun shipping Kickstart 2.0 when the board is released, it will provide a developers' version of Kickstart with the board on the condition that users upgrade to the official Commodore version when available.

A further 4Mb of true 32-bit RAM is supplied on-board, with the option to expand to either 16Mb using 4Mb chips or 64Mb using 16Mb chips.

The board fits into the processor slot of a revision 6.2 B2000 or an A1500. A hardware switch selects whether the 68000 or the board will be used by the Amiga. It will be available in October, at an expected price of around £2,500. Bytes and Pieces can be contacted on ☎ 0253 795376.

DRAWN IN THE USA

TWO NEW COLLECTIONS from Innovatronics hit the Amiga art scene – such as it is – this month.

The first is a three disk set called *Canvas* (volume one of a forthcoming series). It contains five full-screen pictures and 13 animations by Ryan Roberts, the Warner Brothers artist/ animator. The subjects are animals and fantasy characters. At around £30 for the set, the quality of the images will have to be substantially better than that of those available in the public domain. Whether there is actually a market for pre-drawn clip-art images remains to be seen – but Innovatronics is optimistic.

Users who prefer to get a little more involved with their computer software may be more interested in the *Lunar Construction Set*, also by Ryan Roberts. This is a two-disk set of clip art, designed for the creation of lunar and space scenes. A selection of pictures and animations is included to provide examples of how the components may be used. In addition, there are also help screens showing step by step instructions on the creation of asteroids and various lunar features. In total, the package contains 183 clips, 24 pictures and 10 animations.

Both packages will be marketed by Checkmate Digital ☎ 071-923 0658. UK Prices are not yet finalised, but are expected to be in the region of £30 for *Canvas* and £20 for the *Lunar Construction Set*.

Tiny printer turns on the heat

AMIGA OWNERS REQUIRING a portable printer will be interested in the H200 from Ferrotec, which measures a diminutive 320 by 130 by 71mm.

The printer uses a thermal head mechanism and will print both text and graphics. It emulates both the IBM Proprinter and the Epson LQ. Paper comes in the form of rolls, with each roll providing 70 pages 11 inches in length. The paper is 8 inches wide, but this is apparently increased to 8.5

inches via software means (this we would love to see). Power is provided by means of a transformer or rechargeable battery packs.

It supports a variety of fonts – Pica, Courier, Roman, Proportional and Standard – in bold, expanded, condensed and double size styles. Super and sub-script, underlining and overlining are also possible. Print speed is a claimed 220 characters per second in near letter quality mode, 170 cps for letter quality.

Ferrotec will also be supplying a number of plug-in cards for the printer, one of which will print a user-defined message or company logo every time the machine is used.

Ferrotec, a company more usually associated with disk drive manufacture, can be contacted on ☎ 010 353 1 2952529. Alternatively, Applied Business Computing, the first appointed distributor for the printer, can be contacted on ☎ 0609 777000.

Making the news? Make the call: 0225 442244

COMMODORE- THE WORLD AT YOUR FINGERTIPS

AMIGA1500

With Commodore's exciting new 1500 pack you get everything you've ever wanted in a home computer – including the software.

The Amiga 1500 is the ultimate PC for all the family, bringing the world of computers into your home. Ease of use is designed into all Amiga's award winning technology and to make it even simpler the 1500 comes with its own straightforward guide, 'Get the Most out of your Amiga'.

To help you do just that you also get six software packages encompassing business, design, education and leisure. You can monitor your finances with the 'Digita Home Accounts' software, or allow your design skills free rein with the sophisticated 'Deluxe Paint III'. And for business, there's 'The Works! Platinum Edition' – a fully integrated word processing, spreadsheet and database package.

For unbeatable entertainment, enter the realms of fantasy with the arcade sensation 'Toki', journey into a land of enchantment in 'Elf', or risk getting hooked on 'Puzznic'.

*Commodore – a whole new world
which doesn't cost the earth.*

Digita Home Accounts is a trademark of Digita Holdings Limited
Deluxe Paint III is a trademark of Electronic Arts
The Works! is a trademark of Micro Systems Software
Toki, Elf and Puzznic are trademarks of Ocean Software

£999.00
including VAT

COMMODORE - THE WORLD AT YOUR FINGERTIPS

Please send me further details.

Name

Position

Company

Address

Postcode Telephone

Commodore Business Machines (UK) Ltd
Commodore House, The Switchback,
Gardner Road, Maidenhead, Berks SL6 7XA
Tel: 0628 779560. Fax: 0628 71456. Telex: 846057 CBMUKL G.
AS-8/91-22


Commodore



In Brief

INSIDE STORY

An internal hard drive for the A500 has been launched by ICD. The Prima hard drive replaces the Amiga's internal floppy drive and includes an adaptor for converting an external floppy for use as df0: - making it possible to boot from floppy if desired.

The drive is available in two sizes: 52Mb and 105Mb. It will fit into an A500 with at least 1Mb of RAM and an external floppy drive. The 52Mb and 105Mb models cost \$649.95 and \$899.95 respectively - no UK prices have been fixed. They will be sold by Power Computing amongst others. ICD ☎ 010 1 815 968 2288.

DOING A JIG

Jigsaw is an educational puzzle from Think Ltd. It breaks a picture into pieces and lets you put it back together again. *Slide It!* does a similar trick, but emulates a sliding puzzle. Both cost £19.99. Contact Think at Prudential Buildings, 46C High Street, Erdington B23 6RH.

STEREO SOUND

GVP continues to add to its series of Amiga hardware products. This month sees the release of a stereo sound sampler and software, called the Digital Sound Studio. All of the usual features are included with the package, which costs \$125 in the States.

Also new from GVP is the Impact Vision 24 board - a 24-bit colour board giving more than 16,000,000 colours and coming with a built-in flicker fixer, frame buffer and genlock. The board is designed for the A3000, but it can be used with the A2000 with a video adaptor board. The price is \$2,199 in America.

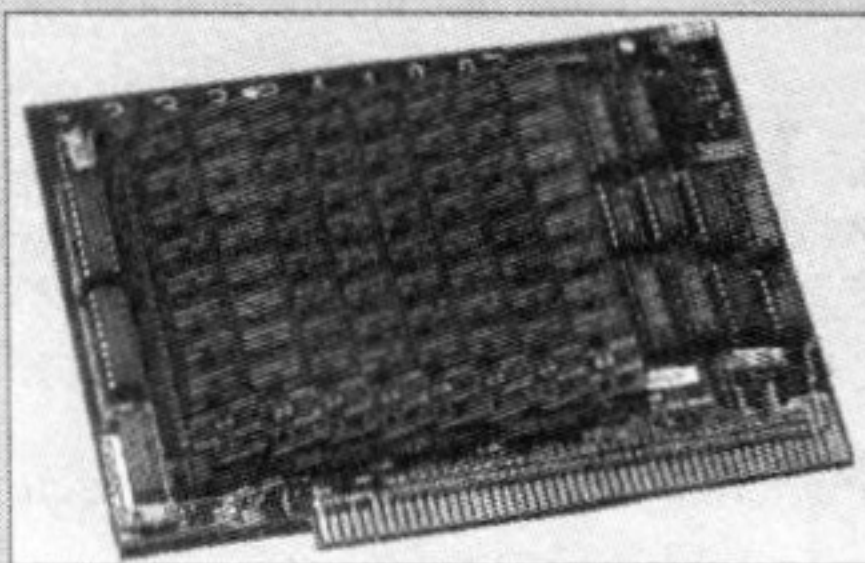
No UK prices yet, but distribution is by Silica Systems ☎ 081-309 1111 and they will be available from major dealers.

RAM takes a flyer

ANOTHER EXPANSION POSSIBILITY emerges with the Dataflyer RAM Card, marketed in this country by Trilogic. The card will hold up to 8Mb of memory, and will plug directly into an A2000 or A1500, or can be fitted to a Dataflyer SCSI interface.

The printed circuit board comprises four layers rather than the conventional two, so that the ground and power lines can be separated from the signal lines and thus provide more reliable performance, the company claims.

The device is compatible with Trilogic's Baseboard, which together gives 10.5Mb of RAM - which should be more than enough for most users.



The Dataflyer RAM card: up to 8Mb.

The board will hold eight 100ns SIMMs, either 256K chips to make 2Mb, or 1Mb chips for 8Mb. The empty board costs £79.99, with 1Mb 100ns RAM chips available at £39.99 each. (Although this price varies frequently.) Trilogic can be reached on ☎ 0274 691115.

Video Blender system offers stunning effects

New products make Progress

PROGRESSIVE PERIPHERALS And Software has been busy recently; a whole host of new products are on their way across the water.

The first is version 2.0 of 3-D Professional. New features include: configurable screen sizes; boolean merging of objects; both vertex and object level editing; image, attribute and bump mapping; a range of new textures; a real-time editing mode; and rendering improvements both in terms of speed and quality, with the addition of anti-aliasing.

IntroCAD makes a re-appearance in the form of IntroCAD Plus, now with ARexx support, user-definable macros and fonts, hatching patterns and 68020/6881 support.

Also re-vamped is Diskmaster, the file management utility, now called Diskmaster II. It improves on the older version

with such facilities as saveable configurations and the ability to display graphics and text files, play sound files and decompress archived files simply by clicking on a file's icon. ARexx support is included.

ACCELERATOR

For the A3000 comes a 68040 accelerator card, clocked at 25MHz. Fitting into the A3000's processor slot, the card provides a speed increase of between three and six times that of the A3000. The card is said to be fully compatible with AmigaDOS 2.0.

QicTape is a hard disk back-up unit. It plugs into the floppy drive port of any Amiga, and with the aid of the supplied software it will copy up to 60Mb of data to a single cartridge tape. More than one cartridge can be used to back-up the drive if needed.

Perhaps the most exciting new release is the Video Blender. This device will work with any Amiga with at least 1Mb of RAM, providing incredible desktop video effects. It produces output from four sources: composite video, RGB video, Amiga graphics and a background colour selectable from a palette of 16,000,000. With any two of these sources it is possible to perform such effects as genlocking, fading, mixing, flicker-free switching, keying, and user-definable wiping. All programmed effects can be saved to a script file for later use.

All Progressive Peripherals And Software products are distributed in this country by Marcam ☎ 081-941 6117 or 0604 790466. Prices had not been fixed as we went to press. Progressive Peripherals And Software is on ☎ 010 1 303 825 4144.

Next month in Amiga Shopper

IN THE NOVEMBER issue of *Amiga Shopper* you'll find a round up of the 3D painting packages available, reviews of *Vista Pro* and the Concept Keyboard, tutorials on programming in C and Basic, and an introduction to Modula-2. Plus the start of a series on MIDI music which will show you how to build your own system on a budget. And we

show you how to produce superb artwork with *Deluxe Paint*. The latest video products are tested out, and we explain how to get the best from your DTP system, and... You get the idea - there's so much in *Amiga Shopper* that you can't afford to miss it. And when you remember that it only costs 99p, it has to be the best deal around. It's on sale October 3rd.

DIARY DATES

Shows and exhibitions in the coming months.

September 6-8:

European Computer Entertainment Show. Trade only. Earls Court, London. EMAP ☎ 071-404 4844.

September 7:

All Formats Computer Fair. Royal Horticultural Hall, London. ☎ 0225 868100.

September 13-15:

Leeds Computer Extravaganza. New Exhibition Centre, Leeds University. Capital North ☎ 0532 677657.

September 14:

All Formats Computer Fair. National Motorcycle Museum, Solihull. ☎ 0225 868100.

September 22:

All Formats Computer Fair. City Hall, Glasgow. ☎ 0225 868100.

October 6:

All Formats Computer Fair. The Brunel Centre, Bristol. ☎ 0225 868100.

October 29-31:

Image Processing '91. National Exhibition Centre, Birmingham. Blenheim Online ☎ 081-868 4466.

November 5-7:

Computer Graphics '91. Alexandra Palace, London. Blenheim Online ☎ 081-868 4466.

November 15-17:

Amiga Format presents The World Of Commodore. Earls Court 2, London. Details on page 97.

December 5-8:

Computer Shopper Show. Wembley Exhibition Halls, London. Cape Cowley Associates ☎ 061-480 9811.

If you have an event you would like listed, write with full details to: *Diary Dates*, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW.

Talking shop

This month there's more discussion about the possibilities of a ROM-based Workbench, and the usual bouquets and brickbats. If you want to express your opinion, write to the editor, Stuart Anderton – you could win £5 if we print your letter!



WHICH ONE TO BUY?

I want to purchase an Amiga in the future, but cannot make up my mind between an A500 and an A1500. I was told that the 1500 is a 500 in a different case with an extra disk drive and 1Mb of RAM as standard. Is this true, as I have not seen or found any tests on the 1500?

David Lea
Slough
Berks

No David, it's not true at all. The 1500 is in fact a 2000 in a different case, which may explain your confused information. The most important difference between the A500 and the A1500 is that the 1500 can take expansion cards containing things like RAM, hard disks and modems, which fit neatly inside the box. More sophisticated devices like the Video Toaster and the PC Bridgeboard can also be fitted. The A1500 is a more professional machine than the A500, which is for home use. If you can wait, we'll be assessing the entire Amiga range and explaining who should buy which machine in issue 8 of Amiga Shopper, out in the first week of November.

TA A LOT, MATE

I wish to thank you and all your staff for *Amiga Shopper*. I am new to the computer world, and at 58 years of age I was not sure it was for me.

I was considering a word processor to replace my typewriter and as my married son was well up in these things, I asked him for guidance. Well, little did I realise what I was letting myself in for.

Someone was looking after this "fool". I bought *Amiga User International*, then *Computer Shopper* then *Amiga Format*, and that was £3.95 well spent, then

I discovered *Amiga Shopper*. This was what I needed; everything a novice needs. Thank you from the bottom of my heart most sincerely, and I wish you every success, for life with my A500 has meaning now.

Bernard C Monteith
Broughshane
Co. Antrim

It's this kind of letter that makes life as a journalist worthwhile...

ON MY RADIO

Having just read the latest issue of *Amiga Shopper* I was pleased to see that you were going to do an article on amateur radio using the Amiga.

I would be interested to know if there are any clubs which cater for the Amiga radio user as most of the radio magazines I buy are all geared around the IBM compatibles.

Keith Elgin
Coleraine
N. Ireland

There is group for radio types, it's called the Commodore Radio Users Group, and the contact is Simon Lewis at 69 Irvine Drive, North Clippens, Linwood, Paisley. On the subject of radio, a bloke who didn't give his name rang me the other day and asked if we wanted to review an Amiga call logging program. If you're reading this Mr X, please send it in!

SNIFFY LETTER

My pen overflows with fulsome praise for your publication but I had better keep it in check or the staff will be in a state of mutiny for higher pay, luncheon vouchers and a three-hour siesta! (I already have one! – Sub.)

If you want the kinky bit, let me say that *Amiga Shopper* smells good! For some strange reason a book or mag that smells good is to me a

more pleasant read – maybe it's my past association with printers' ink and paper.

Alan Hath
Alassio
Italy

I've read about magazine sniffers, but I never thought one would actually reveal himself in public...

LETTER OF PRAISE

At last! An Amiga magazine that is inexpensive and not obsessed with silly games. I come to computing dragged and screaming, and have wrestled with our Amiga 500 for months with native fear and resentment, utterly put off by the so-called instruction books! However, I have persevered and *Kindwords* and *Pagesetter* have seen my office work

and publication work transformed. However, in a previous incarnation I was a marine engineer and like to know why certain things have to be done and what happens when you do. Hence my bewilderment with electronics.

But thanks to your excellent magazine I find intelligent articles (I don't claim to understand them all) and invaluable aids for utter duffers such as myself, e.g. in the August issue I was able to read and understand why disks have to be formatted and what happens when you do. Hitherto nobody – but nobody – has been able to tell me that. Further, your little boxes of Jargon Busting are like oases to me and my like. Please continue your excellent standard. I have placed a regular order.

Rev. Henry Gordon
Tynewydd Road U. R. Church
Rhyll

WARRANTY WARNING

Is your warranty really invalidated if you take the lid off the A1500? One firm assured me that it wasn't, and that it didn't make any difference to my warranty if the machine arrived with its seal already broken. But a leaflet enclosed with the machine giving details of upgrade cards warned that they must be fitted by a dealer. As I am keen to upgrade my machine I would like to clarify this.

Tracey Hartley
Yeovil
Somerset

We asked Commodore to make things clearer, and a spokesman informed us that with "computers designed to have user added options fitted" (ie, the 1500, 2000 and 3000) it would not invalidate the warranty to open the lid. Start pulling chips out, of course, and it's another story, and opening an A500 will kill the warranty instantly.

UNBIASED COMMENTS

Re your products tests. I am amazed to read again and again that companies do not send you their products for review. As a totally unbiased beginner, I shall tell you how I treat this. I know nothing about anything, so I am looking for intelligent, unbiased comments. I know tastes vary – but if something is great, it's great! If a review tests 10 products then I am going to buy one that comes near the top. If a company does not send an item for test I choose to interpret this as either a) they can't be bothered (hmm – not good customer relations) or b) they have something to fear! Either way, because I do not have any information on their product, and I do on others, this will influence my decision. For instance, I am in the process of buying *Wordworth* –

continued on page 13

A meagre price to pay for Amiga Quality

AMIGA 500 Standalone

Mouse • Modulator • Power Supply •
Workbench and
Extras • Manuals
and cables

£299

1Mb

£325

AMIGA 500 Cartoon Classics

As A500 Standalone and 1/2 Mb
Upgrade takes 500 to 1 Meg •
Lemmings • The Simpsons •
Captain Planet •
Deluxe Paint III

£349

AMIGA 500 Screen Gems

As A500 Standalone and 1/2 Mb
Upgrade takes 500 to 1 Meg • Back
to the future II • Days of thunder •
Shadow of the beast II •
The Nightbreed •
Deluxe Paint II

£349

AMIGA 500 Class of the 90's – First Steps

As A500 Standalone and 1/2 Mb
Upgrade takes 500 to 1 Meg •
Software: Prowrite 2.5 • Deluxe
Paint II • Deluxe Print II • Info file •
Music Mouse • Logo and Talking
turtle • Let's spell at home • BBC
Emulator. Accessories: Box of 10
Disks •
Mouse mat •
Resource File •
Introductory video

£459

AMIGA 1500

1 MB RAM • 2 Disk drives • Mouse •
Workbench and Extras • Manuals
and cables • Software: Battlechess •
Populous + Promised Lands • Sim
City + Terrain Editor • The works
platinum Edition • Their finest hour •
Deluxe Paint III.
Get the most out
of your Amiga
Book

£599

AMIGA 1500 M

As Amiga 1500 but with
1084S monitor

£799

AMIGA 1084S Monitor

Colour monitor for A500/

1000/
1500/
2000

£249

0787 880227

MAIL ORDER

ORDER BY TELEPHONE QUOTING
YOUR CREDIT CARD NUMBER,
NAME & ADDRESS. IF
PAYING BY CHEQUE
PLEASE MAKE
PAYABLE TO
MOLLMAC
COMPUTER
SYSTEMS
LTD.

TELESALES 24HR HOTLINE

OPEN MON-SAT 9 am - 5 pm

mcs

**MOLLMAC
COMPUTER
SYSTEMS**

MOLLMAC COMPUTER SYSTEMS LTD
2 MILNER RD CHILTON IND EST
SUDBURY SUFFOLK CO10 6XG
TELEPHONE: 0787 880227
FACSIMILE: 0787 71772

○ Personal cheques will require
clearance before we can despatch
your goods. All prices correct at time
of going to press. Computers are
always tested before despatch. E&OE.

○ NEXT DAY DELIVERY TO
UK MAINLAND.
Post & Package: £10.00
to £17.50 depending on
weight of product.

All prices are inc VAT plus P&P.

Most major credit cards accepted but a charge of 3½% will be added.



continued from page 11

I deliberately waited for your August issue before deciding.

I hope my letter helps you get the message across to the manufacturers. I'm sure I'm not alone in my approach!

Frances Bradley
Kirkoswald
Cumbria

Many companies are indeed reluctant to part with their goods, and many more get extremely annoyed when we don't rate their products very highly. I suppose that is to be expected. We try to be as objective as possible in our reviews, and I'm glad to hear that you take them seriously – that's what we're here for!

GROANS ABOUT GAZZA

I suppose John Lennon didn't have computer software in his mind when he wrote *Imagine*. Personally, the raytracing and animation program

from Impulse called *Imagine* could inspire me to write some very affectionate poetry.

Having just read Gary Whiteley's review of this program in *Amiga Shopper* issue four, I suppose Whiteley does not share my feelings. In my opinion his somewhat sour review did not manage to express the excellence of the program *Amiga World* (the overly serious American magazine) called a "3D modelling-animation breakthrough". A comparison between the *Imagine* review and the *Real 3D* review in the same issue only emphasises this.

Not only does the much more limited and over £100 more expensive *Real 3D* gain a much more favourable review than *Imagine*, but Whiteley, in his review, completely fails to understand the ingeniousness of the cycle and forms editors, and does not mention the flexibility and easiness of use of the action script. Had Mr Whiteley read the ReadMe file on the program disk

properly, he maybe would have noticed the cycle-setup and the cycle-shuffle features. These additions to the program makes the cycle editor something unrivaled by any 3D program on the Amiga.

Concerning the forms editor, although it's true that it is limited, it is certainly not as useless as the review states. After fiddling around with it for a while it's quite easy to make almost anything that has a not too complicated form. I have, for instance, made a human face with this editor. And any two forms with the same number of points and cross sections can be animated to transform from one into the other. When it comes to the animation part of the program, the ability to animate textures, refraction and colour and more is not, I feel, properly discussed in the review.

I could go on for a while like this, because *Imagine* has so many great features to mention. Maybe that is a part of the problem. After all, I have

been using the program for at least half a year, whereas I suppose your reviewers have deadlines which they must keep to.

There is a moral in here somewhere: a late but truly in-depth review is better than an early 'scoop' review which can never give justice to such a marvellous and difficult program as *Imagine*. And why didn't Whiteley confront the creators of the program with his difficulties? Impulse's helpline and user-service is impeccable.

Paul Aam
Orsta
Norway

Gary Whiteley replies:

"I have a feeling that I have been a little misinterpreted here. I checked back on my review (both printed and original) and OK, maybe it's my writing style, but in no way was I intending that my so-called 'sour' review would appear to be rubbishing Imagine. Quotes such as 'I am certainly hooked', 'Imagine can help make your dreams come true' and 'Imagine's current shortcomings would not outweigh its other, excellent, features' don't seem to be that negative to me. I too think that it is a remarkable package, but marred by the omissions and problems which I encountered, not least the manual – which, let's face it, is often the first contact for the new user to learn from. However good Impulse's telephone help-line is, we can't all afford to call the US when something goes wrong."

"Just to clarify things further, I spent a very intensive three weeks examining the software (having previously been using Turbo Silver 3 as my modeller and animator of choice). If I could not use a feature instantly I went back, read the docs and manual once more and tried again – and again. I even went through all the tutorials three times each to try to follow them fully. And I was trying to be honest about those things which let Imagine down, in my opinion."

"Phil's opinion about Real 3D is nothing to do with me. Different strokes for different folks, I'm afraid. Even though he might just be wrong... though of course that's only my opinion!"

ON THE OTHER HAND..

Please thank Gary Whiteley for all his excellent articles, reviews and answers about video on the Amiga. It's nice to know I'm not the only one trying to bolt the two together.

Glenn Somerset
Sheffield

There you go Gary, at least somebody loves you! **AS**

ROMMING AROUND

Letters replying to the letter from Gareth Perch in issue four, in which he suggested that Workbench could be incorporated into a cartridge to save inserting a disk every time the Amiga is switched on, continue to pour in. Here is a selection of them:

I'm glad that Workbench isn't in ROM. I rarely use Workbench, preferring Shell, and my startup-sequence is like *War and Peace*, running various utilities during boot-up. Also, not all RAM expansions auto-configure, and the extra memory has to be added before loading is complete. If the Workbench is in ROM, this isn't possible.

Malcolm Rogers
Rumburgh
Suffolk

When I first read the letter from Gareth Perch in last month's *Amiga Shopper* about the ROM-based Workbench I thought "Hey, there's a nifty idea!" But after some thought on the matter I decided that although feasible, the idea isn't too practical.

My own Workbench disk has been drastically altered so that hardly any of the original programs are still present. I've deleted all the useless waffle, taken the few useful programs from the extras disk and added all sorts of PD utilities such as a cruncher, disk copier and salvaging program as well as the imperative virus busting and boot-block cataloguing devices. I've even done away with the windows and icons of the Workbench screen as I find they take too long to load and take up valuable memory. The disk contains no startup-sequence and kicks me straight into the CLI in a matter of seconds. I find it a perfectly usable environment.

The problem with having a Workbench on ROM is that you can make no alterations to the environment you work with unless a configuration file is read from disk – but even then you couldn't change the programs on the ROMs to suit your own tastes. Upgrades would also be very much more expensive. Bearing these points in mind I prefer the versatility of the disk-based Workbench.

Adrian Chitty
Norbury
London

The technicalities have already been worked out, all that remains is for someone to approach the respective companies for the push into the ROM-based Amiga Workbench software.

I draw your attention to the Action Replay II cartridge from Datel Electronics. OK, so it isn't friendly toward us A590 owners (the missing through-port on the A590 or the Action Replay cartridge, take your pick who is to blame for the omission) but try this: plug in the Replay cartridge and switch the Amiga on. You should get the disk requester screen; now doing a warm reboot (Control-Amiga-Amiga) causes the Datel ROM to boot prior to the Amiga disk requester screen.

This to me means that Datel already has the know-how on cartridge-based software, so all the company should have to do is rebuild the Action Replay cartridge into a modular form providing the following:

- a through-port so I can use my A590 and Action Replay cartridge at the same time
- a ROM slot for the ROM-based software and
- a base unit containing all the interrupt electronics.

The mode of operation for the above is simple: you plug in your ROM, switch the computer on, do a warm reboot or initiate the freeze button thereby running the software in ROM instead of Kickstarting and asking for Workbench. Alternatively, you can boot from the disk drive if all you want to do is play games.

Think about it Datel. The big bonus I feel would be that you'd be laying down the guidelines to ROM software producers, and if it's your base unit everyone uses you get to monopolise on ROM slot sales.

Saqui Ghani
Middlesbrough
Cleveland

Three very different opinions there. It's interesting that two of the correspondents forego the Workbench in favour of a good-old-fashioned text prompt. As a long-time PC (and BBC B) user who now works on a Macintosh I miss being able to type commands, and the Amiga seems to offer a nice compromise. Does anyone else out there use the CLI exclusively, and if so, why? And how can the Workbench be improved so the Shell is a forgotten utility? I look forward to your letters.

MASSIVE PRICE REDUCTIONS NOW EVEN BIGGER SAVINGS!! LOOK FOR THE*

TRILOGIC AMIGA Supermarket



HOTLINE 0274-691115

HOW TO ORDER
ALL PRICES INCLUDE VAT* - NO HIDDEN EXTRAS
(*at 17 1/2 % excluding books)

CARRIAGE
CARRIAGE FREE ON ALL ORDERS!

Optional 1-2 day Express Delivery
£3.50 per order or £7.00 for guaranteed next working day.
(UK mainland, exc. Scottish Highlands).

FREE NEXT DAY DELIVERY ON ORDERS OVER £500
EXPORTS a speciality - add £1.99 for surface mail or £3.99 for airmail.
(Computers, monitors & printers - Please phone for carriage charges).

TO ORDER BY MAIL, PHONE OR FAX
- Prompt Despatch

Simply quote your c/card details, name & address & your order & leave the rest to us. You are not charged until the goods are despatched. Or send cheque or PO (payable to TRILOGIC), or cash (send cash by registered post).

SALES ▶ 0274 691115

ENQUIRIES ▶ 0274 678062

FAX LINE ▶ 0274 600150

TRILOGIC
Dept. A.S. Unit 1
253 New Works Road
Bradford, BD12 0QP

Established 1984

TRILOGIC



Open
Mon-Fri.
8am-6pm
Sat-4pm Sat

OFFICIAL ORDERS FROM
GOVERNMENT & EDUCATIONAL
ESTABLISHMENTS WELCOME.

THE DATAFLYER 500 RANGE

Our low cost high performance SCSI controller & hard drive units give your Amiga 500 real power. Similar styling to the A590, plugging directly into the Amiga's expansion slot, they are available with or without a SCSI drive installed. Optional mains power supply available but rarely necessary in our experience. The built-in SCSI interface offers fast, autobootable performance (autoboot defensible by holding down mouse button) at a low cost & is compatible with any SCSI drive. Installation instructions & utility disk included. 12 months warranty. Ready formatted - just plug in & switch on.

SCSI INTERFACE & HARD DRIVE HOUSING ONLY	£129.99
OPTIONAL MAINS POWER SUPPLY	£54.99
WITH 49meg 28ms SCSI drive fitted	ONLY £389.99
WITH 60meg 28ms SCSI drive fitted	ONLY £419.99
WITH 83meg 24ms SCSI drive fitted	ONLY £459.99
WITH 111meg 15ms SCSI drive & p.s.u.	ONLY £599.99

Drives up to 177meg available. P.O.A. Please ask for separate Dataflyer leaflet. Managing your hard drive is easy with DISKMASTER only £34.99 when purchased with any Dataflyer.

THE DATAFLYER 2000 RANGE

Uses the same SCSI interface card as used in Dataflyer 500, but fits internally. Mounting holes drilled for most 3.5" SCSI drives. Available with SCSI hard drives fitted as listed below. All are Autobootable, have fast access times, & are self parking. An installation & utility disk for formatting & partitioning them is included. Up to 6 SCSI drives may be connected to one Dataflyer controller card. Ready formatted - just plug in & switch on.

SCSI interface card for Amiga 500 & 2000	ONLY £79.99
SCSI card with 49meg 28ms SCSI drive	ONLY £324.99
SCSI card with 60meg 28ms SCSI drive	ONLY £375.99
SCSI card with 83meg 24ms SCSI drive	ONLY £415.99
SCSI card with 111meg 15ms SCSI drive	ONLY £499.99

Drives up to 177meg available. P.O.A. Managing your hard drive is easy with DISKMASTER only £34.99 when purchased with any Dataflyer. Please ask for separate Dataflyer leaflet.

BASEBOARD A500 MEMORY UPGRADE

The BASEBOARD is a very successful high quality memory upgrade card for your Amiga 500. It is compatible with 1.2 & 1.3 rams, & fat & faster Agnus chips. It accepts any 256K 4 Cmos Drams in 1/2 meg steps from 0 to 4 megs & auto configures to give you the full 1 meg chip ram. It has proved to be extremely compatible & reliable, though a disable switch can be fitted if required. An optional add on board gives another 2 megs. No soldering is required, though some technical skill helps; filling the gary adaptor invalidates the computers warranty. Comprehensive instructions supplied. 12 months warranty.

BASEBOARD unpopulated	£89.99
XRAM 2 MEG ADDON CARD	£79.99
BASEBOARD 1/2MEG	£109.99
BASEBOARD 1MEG	£129.99
BASEBOARD 2MEG	£164.99
BASEBOARD 3MEG	£199.99
BASEBOARD 4MEG	£229.99

KSC POWER PC CARD

This fits in the 1/2 meg slot & boosts the Amiga's ram to 1 meg, with battery backed clock. Runs most PC software faster than on many XT's (runs over 120 titles including most well known PC programs). No soldering required, & does not invalidate the computers warranty. Supplied with MsDos 4.01 & Gw Basic. Latest version supports A590 & other hard drives. Comprehensive instructions supplied. 12 months warranty.

LOWER PRICE - NOW ONLY	£229.99
------------------------	---------

OTHER HITECH UPGRADES

KICKSTART 1.3 ROM	£29.99
FATTER AGNUS 8372A	£69.99
8520A 10 CHIP	£15.99
UPGRADED A500 POWER PACK	£44.99
A520 MODULATOR	£24.99
FLICKER FIXER FOR 1500/2000	£299.99
FLICKER FIXER FOR A500	£299.99
SUPRA 8 MEG MEMORY CARD FOR AMIGA 1500/2000	£109.99

Unpopulated - Uses 256K 4 Drams, in 2.4 or 8 meg stages.

CMOS 256K 4 DRAMS - from £33.00 per meg

23W PLUG & COVER £2.99

23W SOCKET & COVER £2.99

DRIVE SWITCHES & ADAPTORS

DRIVE SWITCH 1 for disabling external drive DF1. Fits between the drive port & drive connector. £10.99

BOOT SELECTOR SWITCH. Fits internally, & enables boot drive to be the external drive. Disables the internal one completely - i.e. the internal one cannot be 'swapped' for the external one. £16.99

CYCLONE COPIER ADAPTOR fits between drive & Amiga drive port, needs Cyclone software to work (included free with Xcopy II) £10.99

QUALITY DISK STORAGE

BOXES - LOCKABLE TINTED LID. ANTISTATIC

3.5" DISK LIBRARY CASE for 10 Disks	£14.99
40 SIZE	£6.99
80 SIZE	£7.99
100 SIZE	£8.99
150 SIZE Posso Stackable Drawer Type	£18.99
250 SIZE	£24.99

Special Offers

50 SIZE BOX - 10 Sony Disks - Only £11.99

100 SIZE BOX - 25 Sony Disks - Only £19.99

150 SIZE BOX - 50 Sony Disks - Only £43.99

SONY BULK 3.5" DS/DD DISKS + FREE LABELS

PACK OF 10	£6.99
PACK OF 25	£14.99
PACK OF 50	£24.99
PACK OF 100	£44.99
BOX OF 500	£209.99

Sony branded disks - add 50%

PRESENTATION, PAINTING & ANIMATION

MOVIESSETTER	£59.99
IMAGINE	£174.99
VIDEOSCAPE 3D	£99.99
DISNEY ANIMATION STUDIO	£89.99
DIGIPAIN 3	£49.99
DELUXE PAINT III	£59.99
FANTAVISION	£14.99

Prices are up to £4.00 box cheaper to callers because of savings in postage.

CONTINUOUS LABELS 89 *39mm, 1 across, pack of 1000 £8.99

COPY HOLDER Free standing type £17.99

COPY HOLDER Table top edge clamping type £17.99

PRINTER STAND standard width £13.99

PRINTER STAND for wide carriage printers £15.99

DESKTOP VIDEO PERIPHERALS

DIGIVIEW GOLD V4	£99.99
VIDI - VIDEOCHROME - SPECIAL PRICE	£99.99
RGB SPLITTER FOR VIDI	£59.99
HITACHI MONOCHROME CAMERA	£209.99
MINIGEN	£104.99
REDALE 8802	£174.99
REDALE SUPER 8802	P.O.A.
G2 VIDEO CENTRE	£759.99
COLOURPIC	£389.99
SUPERPIC	£489.99
DIGIVIEW 4 + DIGIPOINT 3	£139.99

VIDEO TITLING

VIDEO TITLER 3 (2 drives & 1meg required)	£109.99
DELUXE VIDEO	£79.99
PIXIMATE	£34.99
BROADCAST TITLER 2 2Meg req'd	£174.99

CAD & DRAWING - 2D/3D

X CAD DESIGNER	£79.99
PROFESSIONAL DRAW 2.0	£94.99
SCULPT 3D XL 1meg minimum	£89.99
SCULPT ANIMATE 4D JUNIOR	£79.99

VIDEOS (VHS FORMAT ONLY)

TRILOGIC'S INTRODUCTION TO THE COMMODORE AMIGA 500 Part 1 Covers all the first time Amiga A500 user needs to know. Including unpacking it, connecting the modulator & mouse, copying workbench, connecting external disk drives, peripherals & memory expansions well worth £14.99 or free with any Amiga purchased from us. Also serves to show just what can be done with an Amiga. G2 genlock, some software & home video equipment 1 Running time: approx 30 min £10.99

PROFESSIONAL TECHNIQUES FOR DPAINT III A 60 minute video showing, you step by step, how to use DPaint III a more advanced & spectacular features £19.95

MONITOR PLINTHS & STANDS

MONITOR PLINTH 1 Simple but effective. This is a steel plinth which fits over the Amiga upon which most monitors & small tvs sit. £24.99

MONITOR PLINTH 2 With Shelf for External Disk Drive etc. This is similar to the Amiga Control Centre - it fits over the Amiga with a slot for the disk drive, & a shelf under the monitor for external drives. Open backed. £34.99

MONITOR PLINTH MOUSE JOYSTICK EXTENSION LEAD KIT PER PAIR £7.99

MONITOR SWIVEL/TILT BASE for 12 to 14" tvs & monitors £17.99

AMIGA TV & MONITOR LEADS

If your tv has an RGB input, you will get a much clearer picture connecting the Amiga to this using one of our leads, rather than via the modulator. All our monitor leads give the full range of colours, & include the audio leads unless otherwise stated.

AL1 AMIGA to scart - works with most scart equipped tvs & monitors, including Sony, Philips, Normande, Ferguson, Toshiba Mitsubishi, ITT etc. £12.99

AL2 AMIGA to Ferguson with 7 or 8 pin Din socket eg MC01 £12.99

AL4 AMIGA to Hitachi/Garanda with 7 pin Din socket £12.99

AL6 AMIGA to Amstrad CPC colour monitor with 6 pin din plug, no audio £11.99

AL7 AMIGA to 1084s monitor with 6 pin din socket & two phono sockets (audio) £14.99

AL7P AMIGA TO PHILIPS 8833 MK2 £14.99

AL7D AMIGA to 1084s D monitor with 9 pin D socket & two phono sockets £14.99

AL8 AMIGA to CGA monitor - 16 colours, no sound, 9 pin D plug £11.99

AL11 AMIGA to Multisync monitor with 9 pin D socket, no audio £11.99

AL12 AMIGA to Multisync monitor with 15w 3 row D socket, no audio £13.99

AL13 AMIGA to Multisync monitor with 15 pin 3 row D plug, no audio £13.99

AL15 AMIGA to Tascam with 8 pin EIA connector, no audio £15.99

AL16 AMIGA to Tascam TMO1 colour monitor, no audio £11.99

MODULATOR EXTENSION LEAD. Enables the modulator to be moved - reduces its overhang & makes for a more secure connection £10.99

MODULATOR SPLITTER. Enables the modulator & monitor lead to be connected at the same time - the modulator is required if you wish to tape the Amiga on a VCR £16.99

GENLOCK SPLITTER. Enables a genlock & monitor lead to be connected at the same time £19.99

Longer Leads can be made to order - add £1.50 per metre to the list price.

SCART SWITCHES TV - MONITOR SHARERS

TV/MONITOR SHARER A for Scart Tvs & monitors. Converts one scart socket into two - switch selects input one or input two. Wired for RGB & composite - stereo sound - suitable for home computers, vcrs & satellite receivers. £19.99

Plugs into the scart socket of your tv or monitor. Dual scart sockets for two computers or Computer + VCR or... Computer + satellite receiver etc. Push button switch selects input 1 or input 2. No additional leads required - your existing scart leads just plug into the sharer.

PRINTER ACCESSORIES

2 WAY PRINTER SWITCH (25w D sockets) now with free computer lead	£24.99
3 WAY PRINTER SWITCH (25w D sockets) now with free computer lead	£27.99
4 WAY PRINTER SWITCH (25w D sockets) now with free computer lead	£33.99

2 WAY CROSSOVER (25w D sockets) & 2 free computer leads £34.99

2 WAY PRINTER SWITCH (36w sockets) with free computer lead £26.99

3 WAY PRINTER SWITCH (36w sockets) with free computer lead £29.99

4 WAY PRINTER SWITCH (36w sockets) with free computer lead £34.99

CONTINUOUS 80gsm PAPER T1 "9.5" Box of 2000 Microperf Margins £21.99

CONTINUOUS 80gsm PAPER T1 "9.5" Box of 1750 Microperf Margins £31.99

PACKS OF 500 SINGLE SHEETS. A4 60gsm white £5.99

PACKS OF 500 SINGLE SHEETS. A4 60gsm blue, green, yellow, or red £9.99

Prices are up to £4.00 box cheaper to callers because of savings in postage.

CONTINUOUS LABELS 89 *39mm, 1 across, pack of 1000 £8.99

COPY HOLDER Free standing type £17.99

COPY HOLDER Table top edge clamping type £17.99

PRINTER STAND standard width £13.99

PRINTER STAND for wide carriage printers £15.99

AMIGA PRINTER & MODEM LEADS

AMP1 AMIGA to parallel printer, approx 1.5m long	£9.99
AMP2 AMIGA to parallel printer, approx 3m long	£12.99
AMP5 AMIGA to parallel printer, approx 5m long	£16.99
MF1 25way male to female lead, approx 1.5m	£11.99
MF2 36way male to female lead, approx 1.5m	£12.99
MM1 25way male to male lead, approx 1.5m	£11.99
MM2 36way male to male lead, approx 1.5m	£12.99
NML1 Null modem lead for linking 2 Amiga	£8.99
NML2 25way female to male modem lead, approx 1.0m	£11.99
NML3 25way female to din plug modem lead - state modem	£10.99
NML3 Designer modem lead	£11.99
BEL1 BBC Emulator lead, 25way to 5 pin domino plug	£8.99
ASPI AMIGA serial printer lead, 25way male/female	£11.99

PRINTER RIBBONS (COMPATIBLE TYPES)

STAR LC2410	£6.99
STAR LC10	£4.49
STAR LC10 COLOUR	£6.99
CITIZEN 12001200/180E	£4.49
CITIZEN 12001200/180E CITIZEN BRAND RIBBON	£6.99
COMMODORE MPS801	£5.99
COMMODORE MPS803	£3.99
PANASONIC KXP1081	£4.49
PANASONIC KXP180/124	£4.49
AMSTRAD DMP2000/3000/3160/3250	£3.49

Buy 3 get 1 free.

SAMPLING

AUDIOMASTER III	£54.99
PERFECT SOUND inc budget Stereo sampler	£52.99
MASTERSOUND INC budget mono sampler	£41.99

Special Offer

AUDIOMASTER III + TRILOGIC STEREO SAMPLER 2 save £19.00 £84.99

SEQUENCING COMPOSING

*= MIDI COMPATIBLE

QUARTET*	£44.99
SONIX*	£39.99
DELUXE MUSIC*	£54.99
SEQUENCER ONE	£84.99
MUSIC X v1.1*	£99.99
MUSIC X JUNIOR*	£59.99
DR TS TIGER CUB 12 track seq + 1 meg req'd	£49.99
DR TS Voice Editors for KORG M1, ROLAND D50, D110, KAWAI K1, K5 etc	£79.99

Special Offers

SEQUENCER ONE + Midi Interface 2 £109.99

MUSIC X v1.1 + Midi Interface 2 £109.99

MUSIC X JUNIOR + Midi Interface 2 £79.99

DR TS TIGER CUB 12 track seq + MIDI INTERFACE 2 £89.99

WRITE OR PHONE FOR FREE AMIGA SUPERMARKET PRICE LIST
includes books, more software, dust covers, ribbons, monitor & printer leads etc., etc. .!

MINIAMP 4 STEREO SPEAKER SYSTEM

Superb low distortion stereo sound. New improved 'bridge' design stereo amplifier. More power - now approx 5 watts per channel. 2 pin din speaker sockets (suitable for most hifi speakers). Compact, quality twin cone speaker units with 6' leads. Mains power pack - doesn't use any computer power. Simple to connect - just plug in & switch on. Please state computer when ordering. Free mains power unit worth £5.99. Miniamp 4 complete. Our mini hifi systems are ideal for your Amiga Atari Ste, Archimedes & personal stereos etc.

STEREO SAMPLER MK II

It's fast & it makes all other samplers obsolete! Which others have a printer through port? Our Superb Mono Sampler is still available. Uses latest state of the art A/D Chip. Very short conversion time < 1µSEC. Very high sample rates > 50KHz (Amiga & software dependent). Superb quality especially with CD audio. Easily adjusted input level control (no screwdriver required). Printer through port - a major innovation. Connects to parallel port only. Compatible with most sampler software inc. Audiomaster I & II, Perfect Sound, Future Sound, Prosound, Quasar Sound, etc. New Free Stereo Sampling Software. This major innovation means that the sampler can be left connected at all times even when not in use. Your existing printer lead is connected to the sampler via our low cost Automatic Printer Adaptor, then whenever you want to print just switch the printer on-line. Switch it off line to use the sampler - what could be simpler. £14.99 extra

MIDI INTERFACE 2

The most versatile midi interface available as supplied to Commodore for the class of 90s pack. 1 midi in socket. 1 midi through socket. 1 midi out socket. 2 switchable out/thru sockets for additional instruments, giving effectively, 3 thru or 2 of each. Fully opto isolated. Very low power consumption. Compatible with Amiga 2000, A1000 version available at extra cost. Compatible with music X Dr TS, Deluxe music, sonix, etc.

MICE, TRACKERBALLS & ACCESSORIES

BUDGET REPLACEMENT AMIGA MOUSE £17.99

NAKSHA MOUSE WITH HOLDER FOR AMIGA £14.99

Other MOUSE £24.99

OPTICAL MOUSE. No moving parts. £39.99

MARCONI TRACKERBALL Save £5.00 £49.99

Precise control. Ergonomically designed. Professional 'feel'. Marconi precision engineering. Solid 2" ball. Positive action buttons.

MOUSE JOYSTICK SWITCH £14.99

Connects in place of mouse (or joystick). Features two sockets with push button selection of mouse or joystick. Switch can be operated at

Dear John...

THE BASICS

When you are writing, the words have to be the most important thing. A word processor is, after all, supposed to help you write.

Because text editing is basically the meat of a word processor (everything else being the vegetables), all of the packages on test not surprisingly edit text in much the same way – the cursor keys move the insertion point about the document one line or one character at a time, or in larger steps in each direction when used while holding down [Ctrl], [Shift] or [Alt]. All of the

In this major product roundup, Jeff Walker puts all the main Amiga word processors to the test

programs allow you to position the insertion point and move about the document by using the mouse, if that's what you prefer.

You can cut, copy and paste blocks of text, search for and replace one word or phrase with another, and move freely about and between documents. It is beyond the scope of this article to go into depth about how the text editing facilities of each of the 11 word processors on test

actually operate; the important fact is that they all let you edit text as well as a word processor should. In this respect none is better than any other, each is merely different and, once you have got used to the way text is edited, all are easy to use.

OPENING TIME

Likewise, all the word processors except *KindWords* will let you work on more than one document at a time; each document is held in a separate window.

How many you can work on at the same time depends the limitations of the word processor or how much memory you have. Most have upper limits (the number in brackets in the 'multiple documents' section of the features chart on pages 30 and 31), while others are limited only by memory, which isn't always as many documents as you expect. *Excellence!*, for example, complained after I opened only eight empty document windows. With *Personal Write* and *TransWrite*, on the other hand, I lost count of how many new windows I opened.

Wordworth claims to be able to have up to 100 documents open at any one time. I opened 16 empty documents in its default medium-resolution, four-colour mode before it complained about lack of memory. This was on a B2000 with 1Mb of graphics (Chip) memory, which is the



"Testing eleven word processors wasn't easy, but it was certainly interesting. I think that a few common assumptions about which one is best will have to be questioned after this..."

Jeff Walker

BEGINNERS

Why do you need a word

processor? The answer's obvious: to write with.

But why not use a typewriter? Or longhand? Millions of books have been written without the aid of a word processor. Do you really need one?

Well, yes, you do. Even if it's only to write letters with. OK, when writing to friends and relations it isn't particularly important to impress, but a stylish, well-presented letter can make the world of difference when writing to the bank manager, for example, or when applying for a job.

Or even when writing to *Amiga Shopper*.

The problem with writing things out longhand or with using a typewriter is that you have to start at the beginning and go on until you get to the end. If, when reading through what you have written, you discover that you've left something out, put something in the wrong place, constructed a paragraph or sentence poorly, spelled a word wrong, gone on for far too long... you have to start all over again and re-write the whole page, or maybe even the whole document. With a word processor

BEGINNERS START HERE

BEGINNERS

you simply load in the file and

correct it; so word processors save you time.

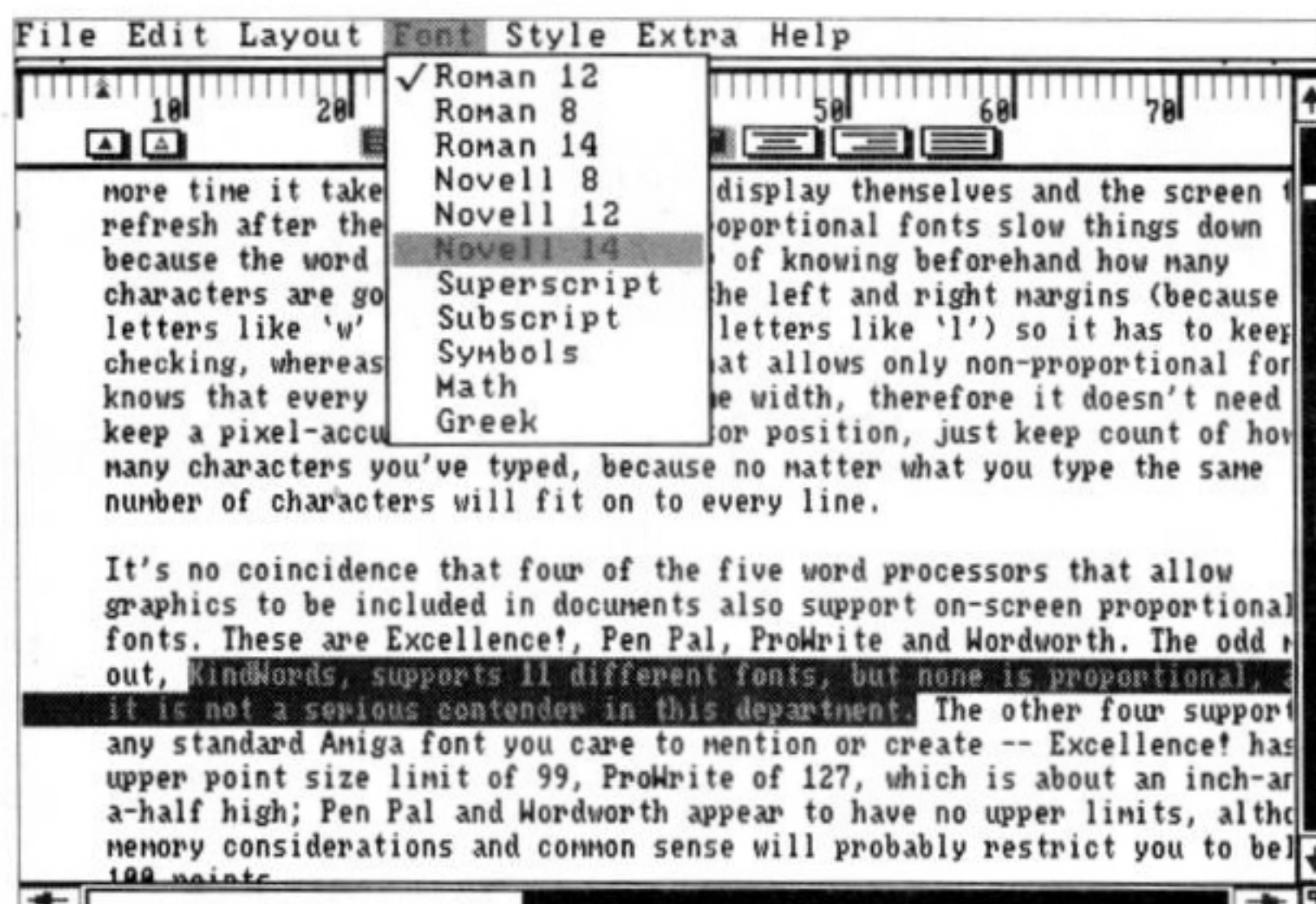
They can also improve the quality of your writing. Because you can cut and paste sections of text around a document, you are not forced into presenting what you have written exactly as you typed it in. For example, you can bash out ideas, sentences and paragraphs as fast as they come into your head, go back and expand on them, then move the sections (or 'blocks') into a sensible order. If it doesn't all hang together, you can change something, try out a new idea or mess around until inspiration makes one of its fleeting visits. Sounds disorderly, I know, but this approach is a recognised way of generating new ideas. It's called 'being creative'.

After you've written your piece, you can use the document formatting facilities of the word processor to present and subsequently print out the pages in a professional or eye-catching style. Some word processors allow you to include graphics on the pages, so you can brighten up business reports, for example, with diagrams and graphs.



Most word processors can open multiple windows – this is *Personal Write*.

continued on page 16



KindWords supports 11 different fonts, but none is proportional.

continued from page 15

Personally I've never felt the need for more than four documents open at once, but if you think you need lots of them then bear in mind that the word processors which allow on-screen graphics and multiple Amiga fonts all eat up graphics memory faster than you can say "I". And all the word processors except *Protext* slow down by differing degrees (although none anywhere near as drastically as *WordPerfect*) the more windows you have open, in the same way and for the same reasons that the Amiga slows down if you open lots of disk and drawer windows on the Workbench. *Protext*, as mentioned above, doesn't open a new window for every document, so it can keep going at full speed.

VELOCITY BLUES

The 'speed' of a word processor is a difficult thing to judge. Normally if we call a word processor fast we mean that characters appear quickly as we type them and the text scrolls quickly when it wraps and forces everything above to move up one line. Speed can also be judged by how long it takes to move from the top of a document to the bottom, or to move through a document one screenful of text at a time.

All these things are directly related to whether the word processor supports colour and, to a lesser extent, whether it supports on-screen proportional fonts.

The more colours you work in, the slower the text handling will be and the more time it takes for requesters to display themselves and the screen to refresh after they have gone away. Proportional fonts slow things down because the word processor has no way of knowing beforehand how many characters are going to fit between the left and right margins (because letters like 'w' are much wider than letters like 'l') so it has to keep checking, whereas a

word processor that allows only non-proportional fonts knows that every character is the same width, therefore it doesn't need to keep a pixel-accurate eye on the cursor position, it just keeps count of how many characters you've typed, because no matter what you type the same number of characters will fit on to every line.

It's no coincidence that four of the five word processors that allow

graphics to be included in documents also support on-screen proportional fonts. These are *Excellence!*, *Pen Pal*, *ProWrite* and *Wordworth*. The odd man out, *KindWords*, supports 11 different fonts, but none is proportional, and it is not a serious contender in this department. The other four support any standard Amiga font you care to mention or create -- *Excellence!* has an upper point size limit of 99, *ProWrite* of 127, which is about an inch-and-a-half high; *Pen Pal* and *Wordworth* appear to have no upper limits, although memory considerations and common sense will probably restrict you to below 100 points in size.

All four will allow you to mix and match fonts to your heart's delight, up to about 200 or so per document -- a limit which isn't a restriction unless you're writing a ransom note.

The other six word processors on test -- *Personal Write*, *Protext*, *QuickWrite*, *Scribble!*, *TransWrite* and *WordPerfect* -- all employ whatever is the default font (usually *topaz8*) and no other, and hence operate more quickly. We're back to swings and roundabouts again -- do you want fancy Amiga fonts on-screen and in your output, or do you want to simply

bash out words, using your printer's built-in font or fonts for the output, or perhaps import the text into a desktop publishing program?

BETTER OUT THAN IN

Your decision as to which word processor to buy will be influenced by the type of printer you have.

If your printer has a number of built-in fonts, then you will want the word processor to use them; if it only has one or two boring draft and NLQ fonts, then you'll want the word processor to send the Amiga fonts to the printer, using the highest resolution possible for more professional-looking results.

Obviously, the six packages that do not support multiple fonts can only output text in the printer's built-in fonts, or a font that has been 'downloaded' to the printer by another program. The normal text styles of bold, italic and underline are available of course, but even a seemingly simple job like changing the pitch mid-document from 10 characters per inch (pica) to 12 characters per inch (elite) can be an awkward job if you don't understand how to use the word processor to send printer control commands.

continued on page 18

GET EQUIPPED

If you are going to spend a serious amount of time word processing then you will need more than just the standard Amiga 500. While your computer will work happily with the spare TV, sitting up close staring at that poor-quality screen for hours on end is going to end in tears. Not tears of frustration, tears of pain. You will eventually begin to suffer headaches. You need a good monitor, something like the Commodore 1084 or the Philips CM8833.

If you want to print out your documents, then you need a printer. Do not rush in to this decision. On no account buy any printer -- including that second-hand 'bargain' from the bloke down the pub -- until you know for certain that there is an Amiga printer driver for it. How do you find this out? Simple. Ask to see it working on an Amiga. Make sure that it prints text and graphics without any spurious characters appearing in the output. If the person selling you the printer can't make it work properly, don't assume that they are stupid, assume that the printer doesn't work. By all means make further enquiries (write to *Amiga Shopper*, for example), but don't part with your money until you have seen that it works.

And make sure that the quality of output is up to the standard you need. Don't be fobbed off with the excuse that the printer is capable of far higher-quality output than the person selling the printer can demonstrate because he or she is inexperienced with the Amiga. If you must buy blind, then look for the words 'Epson compatible'. This guarantees that the Amiga can drive it.

Something else to bear in mind is that 9-pin printers can output graphics dumps (pictures from a paint program, for example) better than 24-pin printers. Until they change the way all 24-pin printers work, don't let

anybody tell you different. But 24-pin printers, of course, output higher quality text. It's swings and roundabouts.

If you need high-quality graphics and high-quality text, then you'll need to consider an inkjet or bubblejet printer. If you want very high quality output, then it has to be a laser printer.

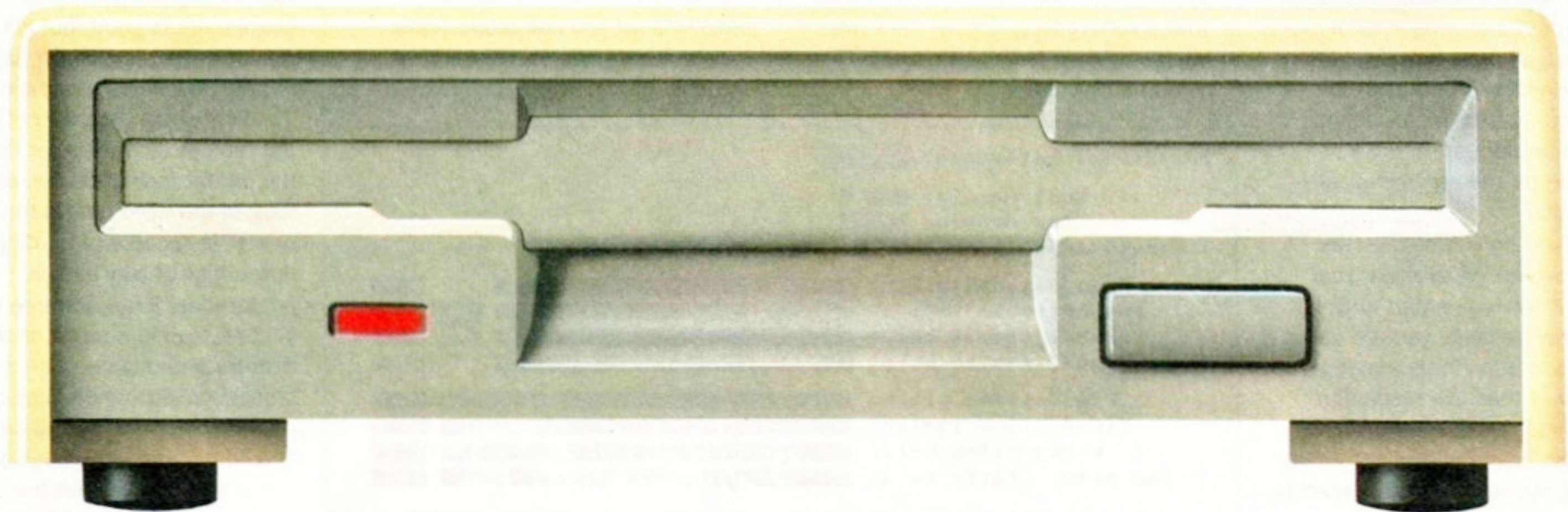
Just as important as a good monitor and adequate printer is a second floppy disk drive. Even if the word processing system you choose can run off one disk -- and some can't -- you will want to save your documents on to a separate disk. With a single-drive system you will be forever swapping disks, which can lead quickly to 'diskswap finger'. The symptoms are a permanently bent index finger with a bulbous hard pad at the tip, and intense annoyance on the part of the operator.

Most important for Amiga 500 owners is extra memory. Although some Amiga word processors will work with only 512K, after they have loaded they will leave precious little room in memory for your document. Spelling checkers? Forget it, unless the spelling checker is a separate program.

At the very least you must buy yourself a 512K memory expansion that fits in the trap door underneath the Amiga. However, I would recommend that you invest in a larger expansion board from the word go. If you don't want to open up your Amiga to fit a large board, then go for one that slots on to the expansion bus on the left-hand side of the computer.

If you're really serious about your word processing and you've got some savings put by, you can kill the last two birds (disk storage and memory) with one stone by purchasing a hard drive that allows RAM chips to be fitted inside it.

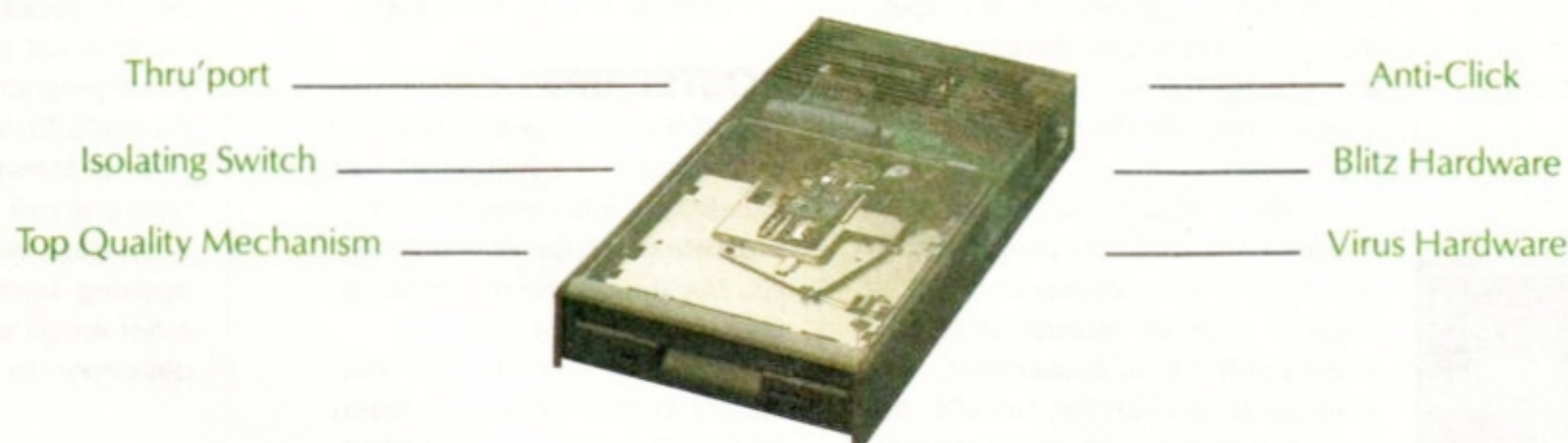
Where you can stick it.



Viruses, disk swapping, clicking drives, disks which won't back up. Is there no end to the whingeing of the Amiga user?

At Power, we want to tell you just where you can stick your disks and worries. In fact we will show you. The slot in this picture belongs to our PC880B, the first intelligent disk drive. Insert a disk.

Now you can back up at lightning speeds using the inbuilt Blitz Amiga hardware, with free software, (even if the disk is Atari or PC) and if your computer has a virus the PC880B will stop it being written to the bootblock of any of your drives, though you can still save files as normal.



When you do not want these features, switch them off and the PC880B will sit quietly, without clicking, pretending to be simply an extra drive.

The PC880B, the only drive to introduce Blitz Amiga, the power anti-click device and to combat viruses, is only available direct from Power, priced at just **£65**.

We have noticed how pricey unintelligent drives are. Perhaps, its your turn to tell people where to stick it.

1988 COPYRIGHT ACT
Power Computing Ltd., neither condones nor authorises the use of its products for the reproduction of copyright material.
The backup facilities of this product are designed to reproduce only software such as Public Domain material, the user's own programs or software where permission has been clearly given.
It is illegal to make copies, even for your own use, of copyright material, without the express permission of the copyright owner, or the licensee thereof.

£65 Now available as a dual drive with the same features, and built-in power supply **£110**

Only available at

POWER COMPUTING LTD

Unit 8 Railton Road Woburn Road Industrial Estate Kempston Bedford MK42 7PN

Tel: 0234 843388 Fax: 0234 840234



Price includes VAT and is subject to change. Specifications are subject to change without notice.

continued from page 16

That's assuming, of course, that the word processor is capable of sending printer control commands. In fact, only four of them can – *Personal Write*, *Protext*, *Scribble!* and *WordPerfect*. By using one technique or another to embed printer control codes into the text, these four word processors can make the printer do anything it is capable of doing – change fonts mid-document (even mid-sentence) for special emphasis, flip the printer into proportional mode and back again, use any character in any of the printer's character sets... the problem is that printer control codes are notoriously difficult to understand for the non-technically-minded user.

But if you know what you are doing, or are willing to learn, your documents will look smart and professional because you are using the high resolution fonts inside your printer rather than low resolution Amiga screen fonts. The *Protext* manual, for example, was produced from camera-ready artwork printed by *Protext* on a laser printer.

With *QuickWrite* and *TransWrite* you are restricted to a single printer font per document, but bold, italics and underline can be employed to brighten up the pages.

The five word processors that support multiple fonts – *Excellence!*, *KindWords*, *Pen Pal*, *ProWrite* and *Wordworth* – can all be forced to used printer fonts instead, but only one of them per print run; in other words, you can't change fonts in the middle of a page. If multiple font documents are what you want then you will have to use Amiga fonts on-screen and choose the word processor's 'graphics' output mode. All except *KindWords* use the standard Amiga preferences printer drivers – if your printer isn't

awful because it basically does a screen dump of what you've got on-screen, which is at a resolution of about 75 dots per inch. The same goes for *Excellence!* and *KindWords* (despite the so-called 'SuperFonts' and 'SuperDrivers' it comes with).

ProWrite has a trick up its sleeve to increase the output quality of Amiga screen fonts – by 'reducing' the page you can effectively increase the font resolution. Reducing by 50 per cent doubles the resolution, and with a reduction to 25 per cent you can get output fairly close to 300

line feed, which most can't; *Pen Pal* doesn't always get its standoff distances correct, so text sometimes ends up running over part of a graphic; *Excellence!* needs much messing about with to get the output to look as it does on screen; *ProWrite* I don't know about, the manual says it can do this neat trick but all I ever managed to get out of the printer was garbage, form feeds and lots of beeps. However, it's no big deal because none of the programs let you use proportional printer fonts (yet), so the output

knows about 32 of the 'classic 35' fonts, which can be toggled between, or you can enter names directly into string gadgets. Each font can be in a different point size, up to 9,999pt.

Incredibly, *Personal Write* cannot save PostScript output to disk; you have to go about it indirectly by using the Amiga's CMD command.

DRIVE YOUR PRINTER

On the whole, the standard of the text editing features of all the word processors is good, but getting high-quality output is difficult, slow, memory consuming or expensive.

Some might argue that this is the fault of the Amiga, or the fault of the printer manufacturer, not the fault of the word processor. But if a printer is capable of printing in half-a-dozen high-quality built-in proportional fonts, in three different pitches, and in a range of styles like shadow and outline, then a word processor running on such a powerful machine as the Amiga should be able to take advantage of these features without the user needing a Computer Science degree.

Because of its easy-to-change printer drivers, only *Protext* comes close. *Protext* doesn't use the standard preferences printer drivers, it uses a type of its own invention. These are initially ordinary *Protext* text files, which get automatically 'compiled' when used for the first time. Currently *Protext* knows about 80 or so types of printer, and this number grows by the month. If you have an obscure printer which isn't supported, provided you have a manual for it and understand printer control codes, changing an existing driver is not at all difficult. You can even 'program' new entries into *Protext*'s Style menu. A separate manual shows you how. Novices may take one look and run for cover, but *Amor* deserves recognition for applying itself to a problem every other Amiga word processor developer (to date) has ignored.

continued on page 21

POSTSCRIPT @ SETTINGS

PostScript activated: YES NO

Left margin: 540

Top margin: 7700

Margin adjust unit: 72

Proportional plain: Helvetica 12

Proportional italic: Times-Italic 12

Proportional bold: Helvetica-Bold 12

Proportional italic bold: Times-BoldItalic 12

Fixed-pitch plain: Courier 11

Fixed-pitch italic: Courier-Oblique 11

Fixed-pitch bold: Courier-Bold 11

Fixed-pitch italic bold: Courier-BoldOblique 11

PROCEED

CANCEL

Personal Write allows you to mix four PostScript fonts in one document.

dots per inch – provided your printer is capable of such a feat, of course.

ProWrite achieves this higher output resolution by increasing the page width on-screen and then scaling it down again when sending it to the printer. To get high-quality 12pt output you would use a 48pt font on-screen and reduce to 25 per cent for output.

Wordworth uses a different trick to achieve similar results on output. Instead of increasing the page size and scaling it down, *Wordworth* loads a larger font into memory and scales that down.

There's not a lot to choose between *ProWrite* and *Wordworth* with regard to the quality of this output – both are acceptable and streets better than *Excellence!*, *KindWords* and *Pen Pal*, but until the new version of the Amiga operating system is released (which supports scaleable fonts), both depend upon you having a supply of fonts in large sizes. *Wordworth* comes with four, *ProWrite* with none.

Wordworth, *Pen Pal*, *Excellence!* and *ProWrite* have another trick up their respective sleeves in the attempt to achieve better quality output – these four will allow you to output a document which includes graphics using the a printer font for the text instead of an Amiga screen font, which *KindWords* insists on if the document has a picture in it.

None of the packages does this particularly well. *Wordworth* makes you put the paper through the printer twice, unless the printer can reverse

always looks a little amateurish whichever package you use.

Talking of proportional printer fonts, none of the five multiple-font word processors can use them, even with no graphic in the document. Sounds stupid? Darn right it does! If you want to use your printer's proportional fonts, *Personal Write*, *Protext*, *Scribble!* or *WordPerfect* are your choices.

Unless, that is, you have...

POSTSCRIPT

Two of the packages on test can print directly to a PostScript device: *Excellence!* and *Personal Write*. *ProWrite* can support PostScript if you buy the additional *ProScript* package (£39.95).

Excellence! comes with four correct-width 'PostScript' screen fonts – Times Roman, Helvetica, Courier and Symbol – in point sizes of 8, 12, 16 and 24. That's the lot. Better than nothing, but only just. Output can be sent to disk so you can trot down the road and get it output on the local print shop's typesetting machine.

Personal Write doesn't come with any screen fonts, because it doesn't work that way. It is possible to mix four different PostScript fonts in one document, one each for Proportional plain, italic, bold and bold italic, or one each for the same flavours of fixed-pitch (non-proportional), which defaults to Courier, the only fixed-width font which comes as standard with all PostScript devices. *Personal Write*

THE RATINGS

This review looks at the different things which you would expect from word processors, and rates each program for each of these things.

The ratings are on a scale of 1-5, with a rating of 1 meaning 'Poor', 3 'Average' and 5 'Excellent'.

supported by *KindWords* (ask before you buy!) you are restricted to draft and NLQ output using a single printer font, like *QuickWrite* and *TransWrite*.

The printed output from Amiga screen fonts ranges from awful to fairly good, depending on which package you use. *Pen Pal*'s output is

CHECKOUT BASIC TEXT FEATURES

Excellence!	● ● ● ○ ○
KindWords	● ● ○ ○ ○
Pen Pal	● ● ○ ○ ○
Personal Write	● ● ● ○ ○
Protext	● ● ● ● ●
ProWrite	● ● ● ● ○
QuickWrite	● ● ○ ○ ○
Scribble!	● ● ● ○ ○
TransWrite	● ● ● ○ ○
WordPerfect	● ● ● ○ ○
Wordworth	● ● ● ● ○

BYTEBACK



FAST

DELIVERY SERVICE

....and the keenest prices

Ring us now! **0636-79097** we're programmed to help

FIND OUT WHY MOST AMIGA USERS PREFER BYTEBACK!

ART AND DESIGN

3D Construction Kit.....	£32.99
Amiga Graphics Starter Kit.....	£24.99
Deluxe Print (2).....	£34.99
Deluxe Paint (3).....	£59.99
Director (2).....	£79.99
Disney Animation Studio.....	£79.99
Fantavision.....	£29.99
Icon Paint.....	£14.99
Imagine 3D.....	£174.99
Photon Paint.....	£19.99
Pixmate.....	£39.99
Professional Draw (2).....	£99.99
Real Things - Birds 1 & 2.....	£23.99
Real Things - Humans.....	£23.99
Real Things - Horses.....	£19.99
Spectra Colour.....	£54.99
The Art Department.....	£54.99
X-Cad Designer.....	£89.99

Podscat 12 x 12 Tablet.....£179.99
Podscat Drivers.....£22.99

Colourburst Tablet.....	£519.99
Pandaal Hand Scanner.....	£159.99
JX100 Scanner.....	£579.99
Scanlab Software for above.....	£69.99

VIDEO

Broadcast Titler.....	£199.99
Deluxe Video III.....	£59.99
Digiview GOLD (4).....	£129.99
G2 Broadcast Videocentre.....	£549.99
HBM Genlock.....	£149.99
Home Titler.....	£29.99
MiniGen.....	£104.99

Panasonic WV1410 Video Camera (including lens).....£229.99

RGB Splitter.....	£64.99
TV Show (NEW).....	£54.99
Video Titler 3D (NEW 1.5).....	£79.99
Vidi Amiga.....	£119.99
Vidi Colour Solution.....	£169.99

MUSIC

Audio Master (3).....	£54.99
Ausio Engineer Plus.....	£169.99
AMAS.....	£79.99
Bars and Pipes Pro.....	£219.99
Deluxe Music Con. Set.....	£49.99
Dr. T Copyist Apprentice.....	£69.99
Mastersound.....	£29.99
Midi Master (Hardware).....	£34.99
Music X (1.1).....	£99.99
Music X Junior.....	£49.99
Perfect Sound.....	£49.99
Quartet.....	£34.99

GAMES - (ask for full list)

AMOS - Games Creator.....	£34.99
Chessmaster 2100.....	£19.99
Dungeon Master.....	£15.99
Flames of Freedom (Mid 2).....	£19.99
F10 Stealth Fighter.....	£19.99
Jahangir Khan Squash.....	£17.99
Lemmings.....	£17.99
Life and Death (Mb).....	£16.99
Railroad Tycoon.....	£23.99

BUSINESS

Cashbook.....	£39.99
Day by Day.....	£22.99
DG Calc.....	£27.99
Final Accounts.....	£22.99
Home Accounts.....	£22.99
Interspread.....	£39.99
Mailshot Plus.....	£39.99
Personal Tax Planner.....	£27.99
System 3.....	£39.99

BUSINESS PACKS

Cashbook Combo.....	£49.99
Gold Disk Office.....	£99.99
Kind Words + Organise.....	£49.99
Works Platinum.....	£74.99

WORD PROCESSORS

Excellence.....	£84.99
Interword.....	£39.99
Kind Words.....	£34.99
Pen Pal.....	£63.99
Protext (5).....	£119.99
Scribble Platinum.....	£42.99
Wordworth.....	£74.99

DESK TOP PUBLISHING

Pagesetter (2).....	£49.99
Page Stream 2.1.....	£149.99
PRO Clips (Clip Art).....	£19.99
Professional Page.....	£184.99

UTILITIES

BBC Emulator.....	£34.99
Cross - Dos (4).....	£27.99
Dos to Dos.....	£39.99
Distant Suns.....	£34.99
GB Route.....	£27.99
Hisoft Basic.....	£59.99

X-COPY PROFESSIONAL (3.3) plus CYCLONE & Hardware! plus Hard Disk backup.....£34.99

Vista.....	£35.99
Workbench 1.3.....	£14.99

EDUCATIONAL

Dinosaur Discovery Kit.....	£17.99
First Letters and Words.....	£17.99
Mickey's Runaway Zoo.....	£16.99
Donald's Alphabet Chase.....	£16.99
Goofy's Railway Express.....	£16.99
Fun School 2 (Under 6).....	£12.99
Fun School 2 (6 to 8).....	£12.99
Fun School 2 (Over 8).....	£12.99
Fun School 3 (Under 5).....	£15.99
Fun School 3 (5 to 7).....	£15.99
Fun School 3 (Over 7).....	£15.99
Micro English (GCSE).....	£18.99
Micro Maths (GCSE).....	£18.99
Micro French (GCSE).....	£18.99
Postman Pat.....	£8.99
Shapes and Colours.....	£6.99
The Three Bears Adventure.....	£17.99

DISKS 100% Guaranteed!

10 SONY Branded disks.....	£8.99
20 SONY Branded disks + FREE Calculator.....	£15.99
150 Disks + Labels + Posso Media Box.....	£69.99
10 Disks + Labels.....	£4.49
50 Disks + Labels.....	£20.99
100 Disks + Labels.....	£39.99
500 Disks + Labels.....	£169.99
1000 Disks + Labels.....	£329.99
100 Disk Labels.....	£1.49

HARDWARE

Naksha Mouse + Mat, Bracket.....	£19.99
Naksha Mouse + Mat, Bracket + Operation Stealth game.....	£24.99
Cumana Disk Drive.....	£59.99
Zydek Disk Drive.....	£52.99
Adspeed Double Speed.....	£199.99
FURRY MOUSE COVER! (with eyes, ears and nose!).....	£6.99
Locking Disk Box (40+).....	£6.99
Media Box (150 - Stackable).....	£19.99
Mouse Mat.....	£3.99
Keyboard or Monitor Cover.....	£5.99

MEMORY EXPANSIONS

500K RAM Expansion!.....	£29.99
500K RAM + DUNGEON MASTER.....	£44.99
500K RAM + KICK OFF 2 (Mb).....	£44.99
1.5 Megabyte Internal RAM.....	£109.99

PRINTERS

STAR LC10 Printer.....	£169.99
STAR LC10 Black Ribbon.....	£3.99
STAR LC10 Colour Ribbon.....	£5.99
STAR LC10 Printer Cover.....	£6.99
STAR LC200 Colour Printer.....	£209.99
STAR LC200 Colour Ribbon.....	£6.99
Printer Stand.....	£9.99
Printer Lead.....	£4.99

BOOKS

Amiga for Beginners.....	£12.99
Amiga Basic Inside & Out.....	£18.99
Machine Language.....	£14.99
Tricks and Tips.....	£14.99
Amiga DOS Inside and Out.....	£18.99
Tricks and Tips (Vol.2).....	£14.99
System Programs.....	£32.99
Disk Drives Inside and Out.....	£27.99
Amiga Graphics In & Out.....	£29.99
Programs disks for above.....	£13.99
Hardware Reference Manual.....	£21.99
ROM Kernal Manual.....	£28.99
Kids and the Amiga.....	£13.99
Second Book of the Amiga.....	£16.99

PUBLIC DOMAIN

1 disk.....	£1.25
10 disks + File box.....	£9.99
20 disks + 2 File boxes.....	£17.99

Ask for our NEW catalogue!

AU.01 Jazzbench; Superb Workbench replacement; full multitasking!
AU.03 QL Emulator; plus 2 disks full of programs. (3 Disks : £3.75)
AU.13 Visicalc; Superb Spreadsheet!
AU.18 North C; Programming language
AU.20 K.O. The Virus (3); Virus X plus BB Champion, Red Alert...
AU.22 Text Plus (2.2); High Quality Word Processor with many features!
AU.23 Word Wright; Word Processor. Plus: Amiga Spell; Spell Checker!
AU.24 Spectrum Emulator; Run some Spectrum games on your Amiga!
AU.26 Complete C Manual; packed with information on C programming plus 70 examples! (3 Disks : £3.75)
AU.27 Amibase (3.76); Professional quality, multi-featured database includes an example 'Books' file.

AE.01 Blackboard Maths; addition to multiplication. Colourpad; On screen colouring book. Plus: Games...
AE.08 Fun Time; Fun School quality educational fun for pre-school children, 5 games (2 Disk : £2.50)

SND.01 Soundtracker; Four versions of this superb PD music program!
SND.02 Soundtracker 4; Alternative Blue version, coupled with complete Instruments disk! (2 Disks : £2.50)
STI.01 to 08 Instruments; 100's on each disk, use with Soundtracker! (8 disks : £7.99 or £1.25 each)
STS.01 to 02 Samples; Superb Sound samples, use with Soundtracker! (2 disks : £1.99 or £1.25 each)

AW.02 Workbench Plus; TVText demo, Fractals, Virus X, Clip It, DMouse
AW.03 Icons; 100's including; the amusing Naughty Icons, Ram icons, Music Icons...plus Icon utilities.
AW.04 Icon Development; Design your own Icons or use one of the numerous examples. Plus Slideshow program!

AC.02 Pagesetter Art; 100's of professional quality clip art pics.
AC.04 IFF Alphabets; 30 screens of high quality fonts plus surfaces.

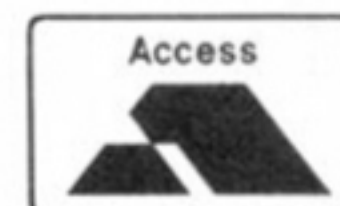
AF.01 Cosmopolitan Fonts; AV-Guard, Basel, Celtic, Geneva, Monaco...
AF.02 Fancy Fonts; Bubbles, Future, Broadway, Park Avenue, Courier...
AF.03 Publishers Fonts; Helvetica, Bookman, Microsoft, Long Island...
AF.04 Fonts; Unusual fonts, Large and Small fonts, Videofonts... Plus: Various Font Utilities!

All prices include VAT and FIRST CLASS POST!
 GUARANTEED RETURN OF POST DELIVERY ON ALL STOCK ITEMS!

BYTEBACK

DEPT ASH, 6 MUMBY CLOSE, NEWARK, NOTTS NG24 1JE

Cheque, postal orders or credit card facilities are available



SaxonScript

P • R • O • F • E • S • S • I • O • N • A • L™

Now Available!

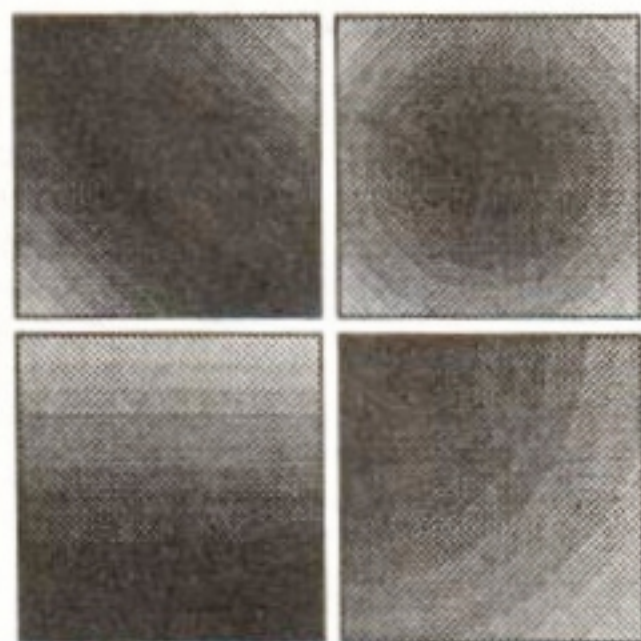
Introducing **SaxonScript Professional**,™ the most powerful and sophisticated *PostScript Interpreter* available on the commercial market. It's like turning your *dot matrix, ink-jet or laser printer* into a full fledged *PostScript printer*, with the added flexibility of being able to edit and manipulate individual files! **On printers equipped with resolutions of 300 dpi or more, the output quality of SaxonScript Professional actually exceeds that of 300 dpi Adobe PostScript laser printers!** Halftoned areas in particular, are consistently sharper, more detailed and feature better transitions between various levels of grey than comparable images produced by using *PostScript*.

PostScript Output at 300 dpi



When pixel values cannot be reproduced exactly, *PostScript* renders the affected pixels in the closest *darker shade* available at the given screen density. *Subtle details are inevitably lost as a result.* *PostScript* halftones also tend to have a grainy appearance because of *PostScript's* inability to produce irregularly shaped halftone cells.

PostScript's approach to halftoning limits the maximum number of possible greys to a function of both resolution and screen frequency. At lower resolutions, this gives rise to the creation of very visible bands of grey which degrade the overall quality of printed images.



FONT CONVERSION UTILITIES

SaxonScript Professional supports all *PostScript* downloadable fonts, including **Compugraphic** and **Adobe Type 1** fonts. Custom utilities further allow you to convert *PostScript* fonts in *Amiga Bitmap*, *Saxon Publisher* or *Adobe Type 1* formats for use in a variety of different applications!

IMAGE CONVERSION UTILITIES

Convert your *PostScript* files into **IFF, EPS, or DR2D** formats for manipulation in various *paint programs* and *desktop publishers*! Or attach **IFF** headers to your **EPS** files, effectively allowing you to *view EPS files on screen*!

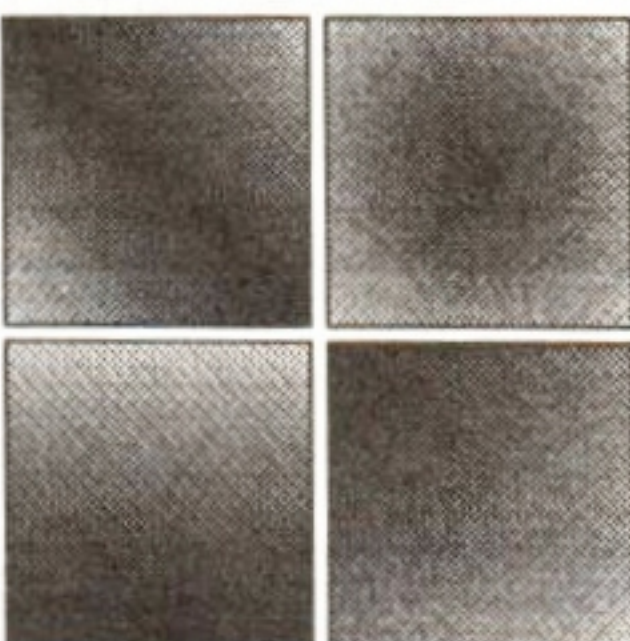
PRINTING UTILITIES

Preview *linotronic* files for potentially costly errors *before* sending your output to a service bureau. Print *PostScript* *directly* to the screen display to obtain

SaxonScript Output at 300 dpi



Because *SaxonScript's* algorithms intelligently switch between *halftoning* and *dithering*, any pixel value can be accurately reproduced. Notice the greater detail found in this image. *SaxonScript's* images are also sharper and crisper than comparable *PostScript* images because of the program's unique ability to create **irregular halftone cells**.



Our unique approach to halftoning does not limit the number of grey levels which can be printed. Consequently, no banding is visible in areas containing colour gradients. This permits smoother transitions and enhances the overall quality of printed images.

accurate colour proofs on screen. Using the included **moire testing program**, you can also test screen angles and densities for visible artifacts *before* printing! After verification, *SaxonScript's* proprietary *compression algorithms* can be used to *compress* your *PostScript* files into a more compact *PostScript* format for faster, i.e., much less expensive output.

***SaxonScript Professional* is available at your nearest dealer for only £99.95 inc. VAT! A free copy of *SaxonScript Professional* is also included with every purchase of *Saxon Publisher V1.2*.**

SURFACE UK LIMITED
5 ROCKWARE AVENUE,
GREENFORD TEL: 081-566 6677
MIDDX EXT: 204/205
UB6 0AA FAX: 081-566 6678

FEATURES

- True virtual memory for compatibility with low memory Amigas, or under conditions of heavy multitasking.
- A powerful **PostScript Interpreter** featuring the implementation of all of the standard *PostScript* operators.
- Support for all Preferences printers.
- A standard set of fonts, matching those most commonly found in *PostScript* printers: **Avant Garde, Bookman, Century Schoolbook, Courier, Helvetica, Palatino, Times, Zapf Chancery** and **Zapf Dingbats**.
- Support for all *Postscript* downloadable fonts including **Compugraphic, Adobe Type 1** and **Adobe Type 3** fonts obtained from any number of different sources. Any *PostScript* font on an *Amiga* disk can be manipulated within *SaxonScript Professional*.
- Conversion of *PostScript* fonts into *Saxon Publisher, Amiga Bitmap, or Adobe Type 1* formats.
- A full colour **PostScript** screen preview which is 100% accurate to the limitations of the screen display.
- The ability to convert *PostScript* files into a **compressed PostScript** format for faster output at service bureaus.
- The ability to test screen angles and densities for **moire patterns** before printing.
- The ability to integrate individual separations into a single full-colour document for **accurate colour proofs** on colour printers.
- The conversion of *PostScript* files into **IFF, EPS, EPSF, or DR2D** formats for editing and manipulations in various applications.
- Automatic sensing of **68881, or 68882**.
- Implementation of all standard *PostScript* operators.
- An open architecture to allow customisation by PD programmers.
- Delayed printing and print to disk options.

MIN REQ: 1 meg, 2 drives.

*Amiga is a registered trademark of Commodore-Amiga Inc.
*All other products mentioned herein are the property of their respective owners.



Dealer Enquiries Welcome

continued on page 22



Only three of the packages will let you crop a graphic -- adjust the borders around the pictures so that only a small part of it is visible. These are Excellence!, KindWords and Pen Pal. There is a valid argument that cropping graphics is best done with a paint program prior to import into a word processor, so I won't labour this point, I'll merely point out that the current versions of ProWrite and Wordworth don't include cropping facilities.]



KindWords allows graphics to be cropped so that only small parts are visible.

continued from page 21

Headers are the line or lines of text that get printed on the top of every page of the document; footers are the same thing, but at the bottom of every page, where most page numbers are found. Footnotes are those bits of extra information in smaller type that you get at the bottom of the page in technical and reference books; somewhere in the text is a small number sitting on the end of a word or sentence, raised slightly (superscript), and this corresponds to the note at the foot of the page. Endnotes are the same thing, only the notes are collected together at the end of a chapter or complete document.

All the packages on test can handle headers and footers with a deal of flexibility, except *Personal Write* which only allows a one-line header and a page number in either the top or bottom margin.

Excellence! is the only one of the 'graphics' word processors that can automatically insert footnotes; *Protext* and *WordPerfect* can do footnotes and endnotes by inserting special commands into the text at relevant points.

All 11 packages can automatically number the pages of your document -- all can do Arabic numerals (1, 2, 3 and so on), some can do Roman as well (i, ii, iii...), and some alphabetical (a,b,c ... aa,ab,ac...). See the features chart for what does what. And if your document is going to be produced as a book or pamphlet it may be important to have different odd-page and even-page margins and headers, a feature known as 'facing pages' by most word processors. Again, some can do it, some can't. See the features chart.

WP OR DTP?

On the whole you can format a neat enough document with any of these word processors. It's harder work with some than others, but in my

experience the ones that force you to work harder tend to produce the best end results.

Wordworth is getting dangerously close to desktop publishing, even though the current version can't do multiple columns (the company's working on it). Why 'dangerously'? Because if it goes much further down this road, and I know that Digita has big plans, it might have to be assessed in relation to its new market competitors -- *Professional Page*, *PageStream* and *Saxon Publisher* -- and instead of being a good word processor it may end up in a 'Poor DTP' pigeon-hole.

As a final observation on the subject of document formatting, I notice that the *Scribble!* manual admits to being produced with *Excellence!* (both packages are by MSS) and the *Excellence!* manual looks like it may well have been produced by the same program, but doesn't specifically admit to it. Similarly, the *QuickWrite* and *ProWrite* manuals look like they were produced with *ProWrite* (both from New Horizons), but don't actually say so. The only manual confident enough to own up to using its subject as its creator is the manual for *Protext*.

CHECKOUT DOCUMENT FORMATTING

Excellence!	● ● ● ● ○
KindWords	● ● ○ ○ ○
Pen Pal	● ● ○ ○ ○
Personal Write	● ○ ○ ○ ○
Protext	● ● ● ● ○
ProWrite	● ● ● ● ○
QuickWrite	● ● ○ ○ ○
Scribble!	● ● ○ ○ ○
TransWrite	● ● ○ ○ ○
WordPerfect	● ● ● ● ○
Wordworth	● ● ● ● ○

GRAPHICS

It would be a mistake to assume that one word processor is 'better' than another simply because it will let you include graphics in your documents. Laying out text and graphics on a page is the job of desktop publishing, and the minute a word processor lets graphics in the door it stops being a word processor and sets up shop in a halfway house between the two.

The point I'm trying to make is that a graphics capability is only useful if it allows you the freedom to do what you want to do without sacrificing the quality or appearance of the text.

Four of the word processors on test here will have nothing to do with graphics -- *WordPerfect*, *Protext*, *TransWrite* and *QuickWrite*. Two of them, *Scribble!* and *Personal Write*, half support graphics by allowing you to load and dump a picture at some point in the document.

Scribble! does it via one of its embedded 'dot' commands, and gives you control over the left margin position and the width, height and printer density of the graphic dump. Your document would contain this 'dot' command at the point in the text where you would like the picture to appear; it's up to you to make sure that there is enough room left on the page for the picture. Naturally, you cannot run text around the pictures, only above and below them.

Personal Write's method is weird and cumbersome, and the program would probably come across as a better one if the facility had been left out. You load a graphic into a separate window, after which you can drag the graphic to the left and right with the mouse. The graphic gets re-mapped to eight colours, colour 0 becomes a transparent background.

When you are happy with its position you can dump it to the printer. Not in the middle of a document, mind you, only at the start or the end of it, either before or after you print the text. It seems a fairly useless feature to me, although I suppose it could be employed to create and print out a personal or company logo at the head of a letter.

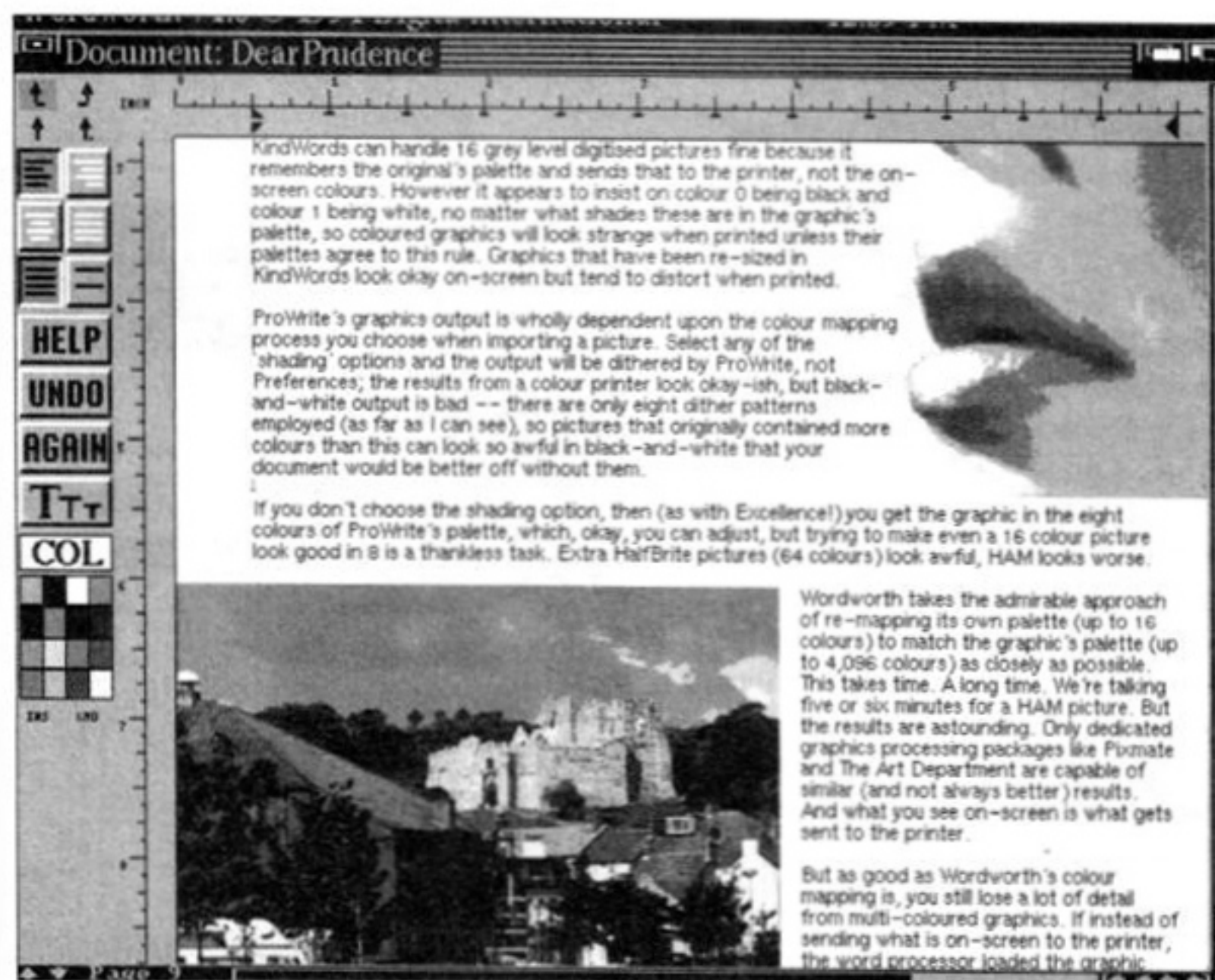
The real graphics fun starts with the 'Fancy Five' -- *KindWords*, *Excellence!*, *ProWrite*, *Pen Pal* and *Wordworth*.

IMPORT AND DISPLAY

I was shocked to discover that *Excellence!* has the lowest graphics import-and-display specification. It can load IFF graphics of up to 32 colours, but it converts these to a maximum of eight colours, using the current *Excellence!* palette settings. Unless the graphic was created in eight or less colours using the same palette, be prepared for some sick-looking pictures, or you'll need to spend some considerable time messing about with the palette trying to make them better.

KindWords also loads up to 32-colour graphics. It converts them to a maximum of 16 colours and displays them in its own (unchangeable) palette, which looks seriously psychedelic. However, *KindWords* remembers up to 16 colours of the original palette and can display the picture in these hues if you ask.

Wordworth, *ProWrite* and *Pen Pal* can import everything up to HAM (4,096 colours). *Wordworth* converts to a maximum of 16 colours, and can change colours 4-15 of its own palette to match as closely as possible those of the original graphic. *ProWrite* converts to eight colours, but can use colour dithering to create the illusion of more; alternatively it can convert a colour



Wordworth allows text to run around the right or left of graphics.

graphic into a monochrome (black-and-white) dither pattern.

Pen Pal is a special case. It converts a graphic to eight colours for on-screen representation only, then for printer output it uses the graphic's original palette – all 4,096 colours (or grey levels for black-and-white printers, of course) if it is a HAM picture.

Pen Pal and *ProWrite* are the only word processors that will let you 'hide' the graphics once they have been positioned, allowing for faster screen refresh when word processing. *Pen Pal* is the only one that has a grid to which graphics can be 'snapped', allowing for greater positioning accuracy, and it's the only one that gives you some simple drawing tools for creating straight lines and boxes.

SCALING AND CROPPING

All of the Fancy Five will let you re-size graphics on-screen, either preserving or ignoring the original aspect ratio. All take a short while to calculate the changes.

Pen Pal stands out again. It holds two copies of the graphic in memory; one copy is displayed on-screen, which you may or may not have re-sized, the other copy is a duplicate of the original full-sized graphic, held in memory so that when you re-size it the calculations are performed on the original, not the on-screen representation. In practice this means that you can make a graphic very small and then change your mind and enlarge it again without the graphic turning into a blocky mess, which is what happens if you do the same thing with the other four, forcing you to re-load the graphic and start again.

I was heartbroken to find that *ProWrite*, which employs dither patterns to represent the colours of

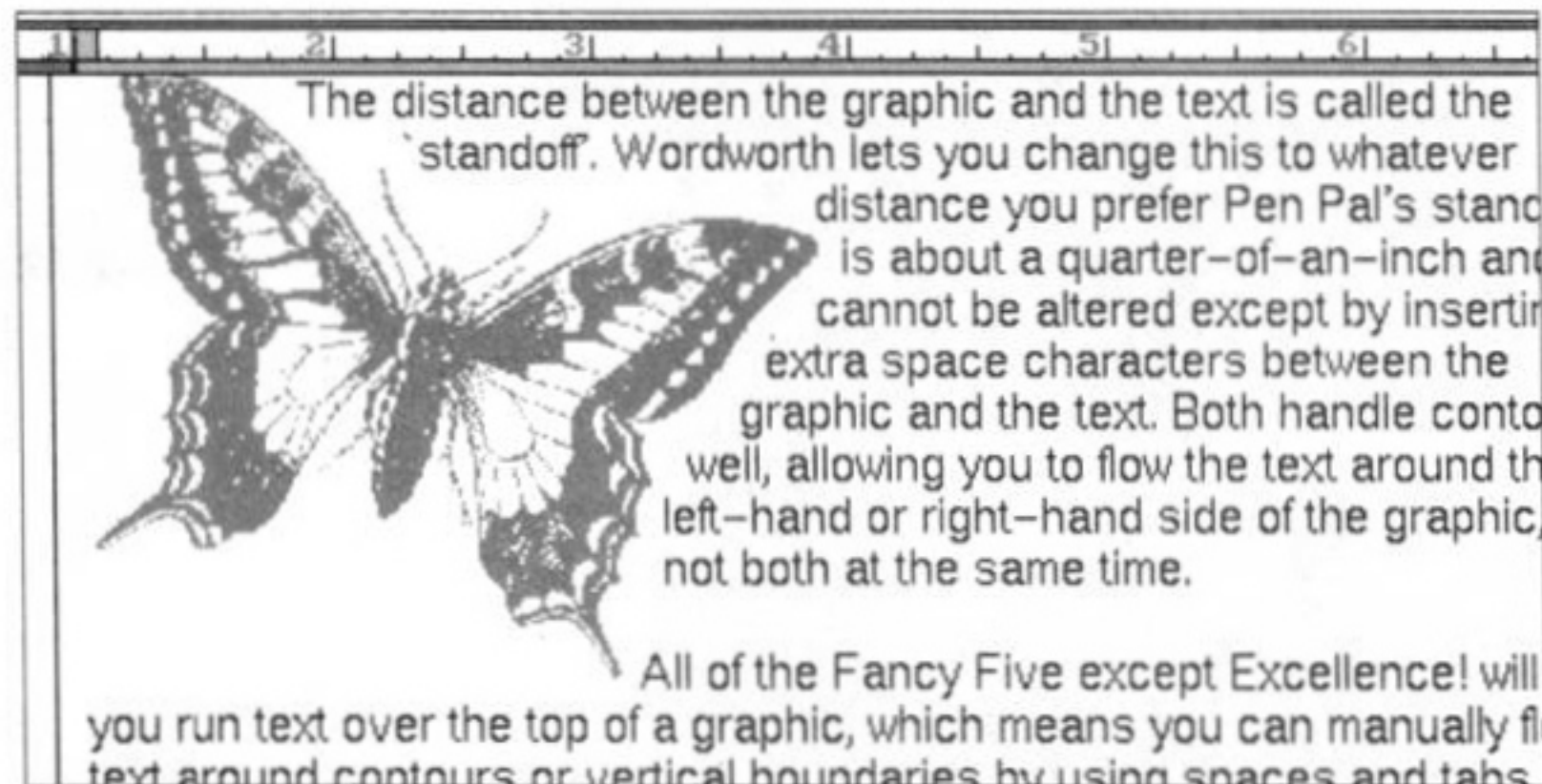
a graphic, simply enlarges or reduces the on-screen pattern rather than recalculating the dither. Re-sizing larger results in bigger dots (as opposed to more dots), re-sizing smaller corrupts the graphic with a banding effect.

Only three of the packages will let you crop a graphic – that is, adjust the borders around the pictures so that only a small part of it is visible. These are *Excellence!*, *KindWords* and *Pen Pal*. There is a valid argument that cropping graphics is best done with a paint program prior to importing into a word processor, so I won't labour this point, I'll merely point out that the current versions of *ProWrite* and *Wordworth* don't include cropping facilities.

GO WITH THE FLOW

The odds are that if you are importing a graphic into a document you will want to run text around it, either straight down one side with a vertical boundary or, if it is an irregularly shaped object, around the contours of that object. You won't want to do this by hand; if you move or re-size the graphic you will want the text to adjust itself automatically. This feature is called 'text flow' and, unbelievably, only two of the Fancy Five fully support it – *Wordworth* and *Pen Pal*.

The distance between the graphic and the text is called the 'standoff'. *Wordworth* lets you change this to whatever distance you prefer, while *Pen Pal*'s standoff is about a quarter-of-an-inch and cannot be altered except by inserting extra space characters between the graphic and the text. Both handle contours well, allowing you to flow the text around the left-hand or right-hand side of the graphic, but not both at the same time.



Pen Pal has a fixed distance for runaround text of about 0.25 inches.

All of the Fancy Five except *Excellence!* will let you run text over the top of a graphic, which means that you can manually flow text around contours or vertical boundaries by using spaces and tabs if you need to.

ON THE PAGE

Because of the different ways graphics are imported and converted for inclusion in the document, each of the packages outputs graphics to the printer differently.

Excellence! re-maps the imported graphic to its own 8-colour palette, which you can change, and sends the exact colours (or grey level representations) you see on-screen to the printer. In practice this means that you are restricted to 2, 4 or 8-colour graphics, even though *Excellence!* can import up to 32 – the printed output from a 16 or 32 grey-level digitised picture, for example, is poor; black-and-white and clip art, on the other hand, is good.

KindWords can handle 16 grey-level digitised pictures fine because it remembers the original's palette and sends that to the printer, not the on-screen colours. However, it appears to insist on colour 0 being black and colour 1 being white no matter what shades these are in the graphic's palette, so coloured graphics will look rather strange when printed out unless their palettes agree to this rule. Graphics that have been re-sized in *KindWords* look OK on-screen but tend to distort when printed.

ProWrite's graphics output is wholly dependent on the colour mapping process you choose when importing a picture. Select any of the 'shading' options and the output will be dithered by *ProWrite*, not Preferences; the results from a colour printer look OK-ish, but black-and-white output is bad – there are only eight dither patterns employed (as far as I can see), so pictures that originally contained more colours than this can look so awful in black-and-white that your document would have been far better off if you hadn't included them.

If you don't choose the shading option, then (as with *Excellence!*) you get the graphic in the eight colours of *ProWrite*'s palette which, true, you can adjust, but trying to make even a 16-colour picture look good in eight is a thankless task. Extra HalfBrite pictures (64 colours) look awful, HAM looks worse.

Wordworth takes the admirable approach of re-mapping its own palette (up to 16 colours) to match the graphic's palette (up to 4,096 colours) as closely as possible. This takes time. A long time. We're talking five or six minutes for a HAM picture. But the results are astounding. Only dedicated graphics processing packages like *Pixmate* and *The Art Department* are capable of similar (and not always better) results. And what you see on-screen is what gets sent to the printer.

However, as good as *Wordworth*'s colour mapping is, you still lose a lot of detail from multi-coloured graphics. If, instead of sending what is on-screen to the printer, the word processor loaded the graphic from disk and printed that – positioned, re-sized and cropped as specified – you wouldn't lose any detail. This is what *Pen Pal* does: it converts a graphic to eight colours for on-screen display, but when it outputs it prints the original file, not what you see on the screen.

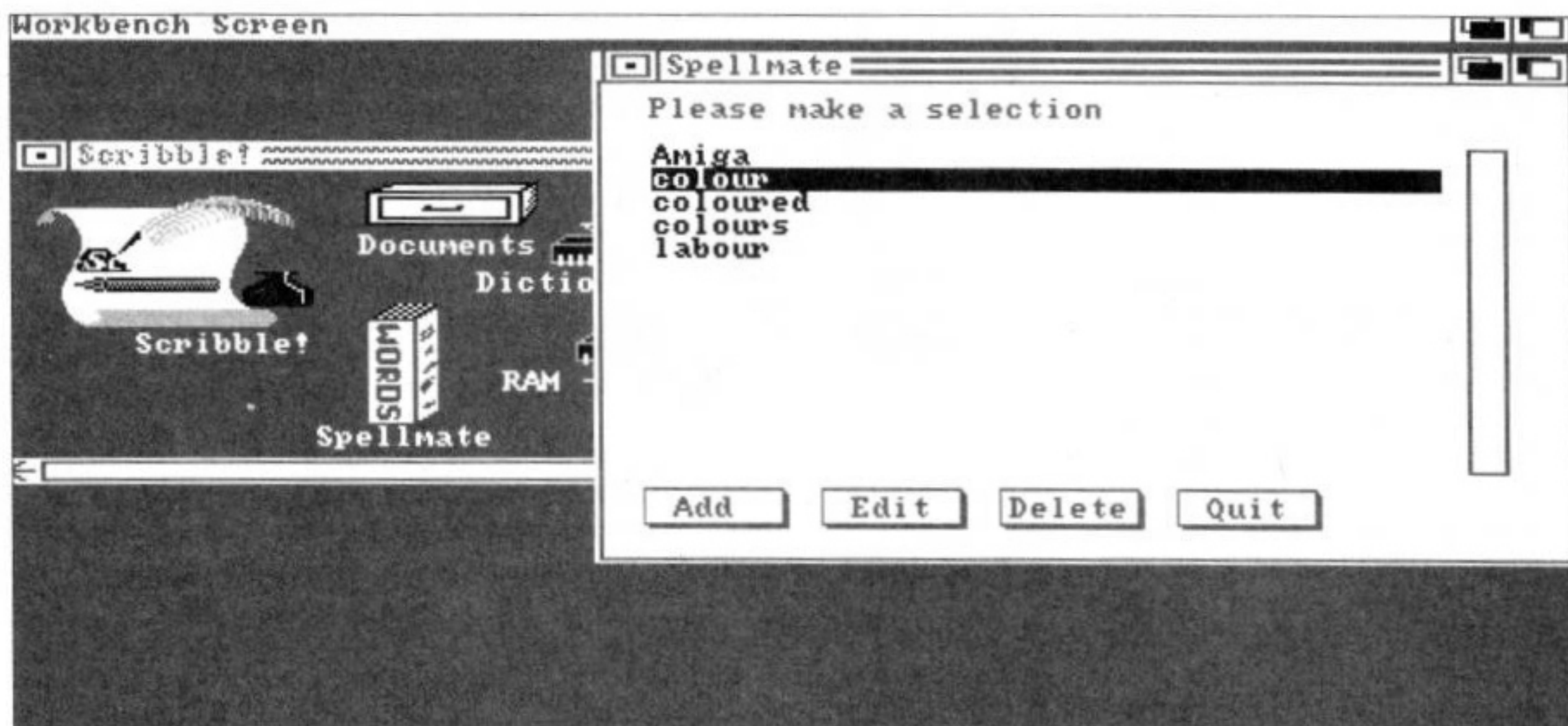
continued on page 24



ProWrite doesn't re-calculate the dither pattern when enlarging or reducing a graphic – which can lead to a serious degradation in the image quality.

CHECKOUT GRAPHICS

Excellence!	● ● ○ ○ ○
KindWords	● ● ○ ○ ○
Pen Pal	● ● ● ● ○
Personal Write	N/A
Protect	N/A
ProWrite	● ● ○ ○ ○
QuickWrite	N/A
Scribble!	N/A
TransWrite	N/A
WordPerfect	N/A
Wordworth	● ● ● ● ○



Scribble! comes with a separate utility for dictionary management, so you can correct mistakes.

continued from page 23

SPELLING CHECKERS

Only one of the packages on test, *Personal Write*, comes without a spelling checker – but then it's the cheapest of the bunch, so this is understandable.

The rest are all supplied with big dictionaries and all have options to create your own 'user' dictionaries of words the supplied ones don't know about. All the spelling checkers work in much the same way, at much the same speed, which is fairly quickly if you're running from a hard disk or you copy the dictionaries into RAM, or very slowly if you store the dictionary on a floppy disk.

It should be noted that even with 1Mb of memory you may not have enough left after loading the program and your document to copy the dictionaries into RAM.

ALL AT ONCE

Another way to speed up spelling checking is to do it as a 'batch'. This means that the whole document is analysed, and then the spelling checker asks you what to do about all the unknown words it discovered.

The advantage here is that if you've spelt a word wrongly five or six times, correcting it once will correct every occurrence in the document. Only *Protext* and *TransWrite* have a batch spelling check mode. *TransWrite*'s is a little awkward to use; you're never quite sure whether you've clicked the correct button or done the right thing. In fact, on the whole *TransWrite*'s spelling

checker is the unfriendliest of the lot – but then, you can't expect the world for £40.

Protext's batch mode is by far the quickest and easiest way to check spelling – there's no annoying requester popping up every few seconds, and no wait while the screen gets its act together so it can highlight the word under examination. In batch mode, *Protext* simply goes through the whole document, afterwards presenting you with the unknown words, one at a time in alphabetical order. If, though, you like checking the spelling the other way, which often means having to correct the same misspelt word more than once, *Protext* will quite happily let you.

ROLL YOUR OWN

Protext is also unique in that it allows up to six dictionaries to be checked for correct spellings. Four are provided by Arnor – the two main ones, plus two 'quick' dictionaries of common words. The other two can be supplied by yourself as user dictionaries.

Any or all of these dictionaries can be used automatically to look up words when checking the spelling of

a document, which means that you could configure *Protext* to check nothing but one of the quick dictionaries, which would save enormously on memory and time, or to check all of them, which would use more memory and take longer, but would throw out less words as being spelt incorrectly.

You can build as many dictionaries as you like, specialised ones for specialised documents for example, and have different 'config' files (what the rest of the world calls 'preferences' files) that specify which dictionaries to use.

TransWrite also lets you load and use other user dictionaries by specifying the filenames in the spelling checker program's Tool Types. The only other program to speed up things by looking in a 'quick' dictionary of common words first is *Pen Pal*.

All the word processors that have spelling checkers provide the means to create at least one user dictionary, and each has its own way of inserting and deleting words from it. *Protext*'s is the most cumbersome method, forcing you to create a file of words that should be deleted from the user dictionary, and then

providing its Delete Words option with the name of that file.

A much better way is to stick up a requester and let you click on a word that you have included by mistake, and then select a Delete button. *Wordworth* and *Pen Pal* do it this way from within the main program, while *Scribble!*, *Excellence!* and *WordPerfect* provide separate utilities for easy management of dictionaries. *QuickWrite*, *ProWrite* and *TransWrite* save their user dictionaries as text files and force you to manually edit these files if you want to remove words. *KindWords* will allow you to enter words into a user dictionary, but once they are entered there is no way of getting a 'bad' word out short of deleting the whole dictionary.

Only *Wordworth* and *Protext* come with UK dictionaries, all the others speak American English, except *ProWrite* which speaks both at once – just as useless if you miss the 'u' out of 'colour' or 'labour', for example. And while the proper English spellings of some words have been patched into *ProWrite*'s spelling dictionary, they haven't been patched into the thesaurus, so to get a synonym for 'colour' you have to look up 'color'. Bah!

The same applies for every thesaurus except *Wordworth*'s and *Protext*'s – that's the new version 5.5, by the way; any version of *Protext* below this does not have a thesaurus, and nor do *Personal Write*, *Pen Pal*, *TransWrite* and *QuickWrite*.

There's not a lot you can say about thesauruses; from a personal point of view I always find it more informative to see what *Roget* has to say on the subject. Only *Excellence!*'s thesaurus stands out: it not only displays synonyms and antonyms, but related words which are almost but not quite synonyms or antonyms, plus it gives definitions of the word being looked up in every way it can be used. Truly excellent.

continued on page 26



Protext has a very fully-featured spelling checker, along with a thesaurus.

CHECKOUT SPELLING CHECKERS

Excellence!	● ● ● ● ●
KindWords	● ● ● ● ●
Pen Pal	● ● ● ● ●
Personal Write	● ● ● ● ●
Protext	● ● ● ● ●
ProWrite	● ● ● ● ●
QuickWrite	● ● ● ● ●
Scribble!	● ● ● ● ●
TransWrite	● ● ● ● ●
WordPerfect	● ● ● ● ●
Wordworth	● ● ● ● ●

10 MARKET PLACE
ST. ALBANS
HERTS AL1 3DG
TEL (0727) 56005/41396

Hobbyte

COMPUTING
ESTABLISHED 7 YEARS

THE GALLERY
ARNDAL CENTRE
LUTON, BEDS LU1 2PG
TEL (0582) 457195/411281

AMIGA STARTER PACK

Full Amiga 500 pack, WITHOUT Cartoon Classics/Screen Gems software: BUT WITH:

15 disc Hobbyte PD Greats pack, including Virus Killers, the Best Star Trek and other top ten games, Arcade Classics, Board Classics, Best of the Utilities, Home pack including Word Processor, Spreadsheet, Database, 10 blank disks, mouse mat, Joystick

512K AMIGA £299
1 MB AMIGA £325

1MB AMIGA

AMIGA GAMES PACKS

CARTOON CLASSICS OR SCREEN GEMS

Full Amiga 500 pack, PLUS: Lemmings, The Simpsons - Bart v The Space Mutants, Captain Planet and the Planetoids, Deluxe Paint III (Deluxe Paint II with 512K Cartoon Classics)

OR Screen Gems software: Shadow of the Beast II, Back to the Future II, Days of Thunder, Nightbreed, Deluxe Paint II

512K AMIGA £329

1MB AMIGA £349

DP III instead of DP II (1MB only) ADD £40

Screen Gems S/W Pack only £39

Cartoon Classics S/W Pack only £49

1MB AMIGA

AMIGA THE LOT!!

EVERYTHING YOU COULD EVER NEED!!

CARTOON CLASSICS OR SCREEN GEMS GAMES PACK

AS LEFT, PLUS: 10 GREAT INDIVIDUALLY PACKAGED GAMES - previous RRP's £19.99-£39.99 each, phone to choose from current list of 15, or leave it to us! Children's games available.

15 DISC HOBBYTE PD GREATS PACK, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database

Dust Cover, 10 Blank Discs, Disc Box, Mouse Mat, Microswitch Turbo Joystick

512K Amiga £365

1MB Amiga £389

WITHOUT CARTOON/SCREEN GEMS S/W DEDUCT £20

1MB AMIGA

ABSOLUTE BEGINNERS PACK

FULL AMIGA 500 PACK, PLUS:
POSTMAN PAT, SNAP, SNAKES AND LADDERS, LUDO
FUN SCHOOL 2 AND FUN SCHOOL 3

(specify under 6 years, 6 to 8 years, or 8+ years) (specify under 5 years, 5 to 7 years, or 7+ years)

12 stunning UK educational games with beautiful pictures, exciting animation and music that help to develop number, word and other skills. Up to 6 skill levels.

Conform to National Curriculum requirements.

HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)

HOBBYTE 30 EASY CHILDREN'S GAMES,

10 disc pack inc; Train Set Game, Flashbier.

JOYSTICK

512K AMIGA £355

1MB AMIGA £375

ABSOLUTE BEGINNERS S/W PACK £55

HOBBYTE
EXCLUSIVE

AMIGA FIRST STEPS

EXPANDED EDUCATIONAL/APPLICATIONS PACK

FULL AMIGA 500 PACK, PLUS:

AS01 512K RAM expansion
Lets Spell at Home, Music Mouse, Prowrite WP, InfoFile spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, LOGO, Talking Turtle, BBC Emulator, 5 BBC programmes, 10 discs, DOs and DON'Ts poster, Resource File, In Pack Video, NAPE Booklet.

HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)

HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Flashbier.

JOYSTICK

*STOP PRESS - 'FIRST STEPS' NOW £449

DP III instead of DP II (1MB only) ADD £40

FIRST STEPS SOFTWARE UPGRADE PACK

£149

A3000 WITH 1950 MONITOR OFFER

PRICES EX VAT

A3000 25/40 25 MHz, 40 MB HD, 2MB RAM, 1 x 3.5" 880K floppy, keyboard £1989

A3000 25/100 25 MHz, 100 MB HD, 2MB RAM, 1 x 3.5" 880K floppy, keyboard £2289

1MB static RAM for A3000 £199

PHONE FOR DETAILS OF 1950 OFFER

A3000 Trade in price as above less £150 - £200. Please phone.

Please see under "Extras" for additional expansion

A500 PROFESSIONAL PACK

Full A500 pack, without Cartoon Classics/Screen Gems software, BUT WITH A1500 SOFTWARE PACK:

THE WORKS PLATINUM- professional database, WP, Spreadsheet

Deluxe Paint III, Populous, Their Finest Hour Battlechess, 'A-Z of Computer Jargon', 'Get The Most From Your Amiga',

PLUS: 10 BLANK DISCS, LOCKABLE DISC BOX, MOUSE

MAT, JOYSTICK, DUST COVER

1MB AMIGA £499

1MB AMIGA PLUS

CITIZEN 24 PIN BLACK/COLOUR PRINTER £769

SCREEN GEMS SOFTWARE £39 EXTRA

CBM CDTV

A revolutionary new concept in home entertainment and education. Amiga based with a professional CD system and infra-red remote control unit, it is similar in appearance to a VCR and simply connects to your television (and your hi-fi system if you wish) for incredible interactive multimedia sound and graphics effects. The CBM CDTV plays:

STANDARD CD AUDIO DISCS:

CD + GRAPHICS DISCS: Display on-screen graphics as accompaniment to CD audio track

CD KARAOKE DISCS: With CD audio backing, the words displayed on the TV screen, mixer unit and stereo microphone, you have your own high quality Karaoke system for a fraction of the normal commercial cost.

CD MULTIMEDIA TITLES: Similar to computer games and educational titles but better. CDs have a massive 540MB storage capacity. Controlled by user via remote control unit.

CDTV SYSTEM £599

INCLUDES: CDTV player, infra red remote control unit with batteries, Hutchinsons Encyclopaedia inc 25,000 entries, 7,000 biographies, 250 tables, Lemmings - top selling game, Welcome disc, disc caddy, manual, cables.

CDTV KARAOKE

CDTV KARAOKE SYSTEM £699

As above, complete with Sony Stereo Microphone, Mixer Unit, leads, plus any one Karaoke disc, containing 18 top Karaoke titles.

CDTV PROFESSIONAL KARAOKE SYSTEM £999

As KARAOKE system above, PLUS any TWO Karaoke discs, containing 36 top Karaoke titles, PLUS a pair of high quality Bose Lifestyle Roommate Speakers and leads, (30W rms full range powered speaker system) for truly professional sound.

Telephone for full list of CD+G, Multimedia and Karaoke Titles

NO DEPOSIT CREDIT FACILITIES (UK mainland)

Credit terms at 34.8% APR (variable) can be arranged for purchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just tel for written details and application form.

CBM 1084SDI OR PHILIPS 8833 COLOUR MONITOR, LEADS £219

(WITH ANY PACK)

CITIZEN SWIFT 24 COLOUR PRINTER, LEADS £269

(WITH ANY PACK)

AMIGA 1500/2000

Full UK spec, latest version with 1MB RAM, mouse, expansion as B2000, manuals and operating discs, available as:

A1500/2000 PLUS: 15 DISC HOBBYTE PD GREATS PACK

including Virus Killers, the BEST Star Trek, Computer Conflict, Breakout and construction Kit Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of Utilities, Home Pack including Word Processor/Spell Check, Spreadsheet, Database.

	Without monitor	With 1084SDI monitor
DUAL DRIVE	519	729
SD + 2091/52 MB QUANTUM HD	829	1039
SD + 2091/52 MB QU HD + 2MB	889	1079
SD + 2091/100 MB QU HD	949	1139

A1500/2000 PLUS: A1500 SOFTWARE PACK including The Works, Platinum database, WP, Spreadsheet, Deluxe Paint III, Sim City, Populous, Their Finest Hour, Battlechess, A-Z of Computer Jargon, 'Get the Most' from your Amiga.

PLUS: 15 DISC HOBBYTE PD GREATS PACK AS ABOVE

	Without monitor	With 1084SDI monitor
DUAL DRIVE	649	859
SD + 2091/52 MB QUNTUM HD	949	1159
SD + 2091/52 MB QU HD + 2MB	1049	1229
SD + 2091/100 MB QU HD	1079	1289

A500 TO 1500/2000 TRADE IN

Dual Drive, with Hobbyte 15 Disc PD Greats Pack,

but without A1500 software pack or monitor £399

As above with A1500 S/W pack £479

As above with A1500 S/W pack plus 1084 SDI £679

Single Drive plus 52MB Quantum Hard Drive and

2091 controller, with Hobbyte 15 Disc PD Greats Pack,

but without A1500 software pack or monitor £699

As above with A1500 S/W pack £799

As above with 1500 S/W pack plus 1084 SDI £999

As above with 1500 S/W + 1950 + Flicker Fixer £1299

EXTRAS inc VAT

Star LC200 colour printer with leads	£195
Star LC24-200 colour printer with leads	£289
Citizen Swift 9 pin colour printer with leads	£189
Citizen Swift 24 pin colour printer with leads	£274
Commodore 1084SDI or Philips 8833 MkII Stereo colour Monitor, + leads	£229
Second external 3.5" drive with daisychain through port and disable switch	£47
PC 880 anti-clickext. drive	£55
AS01 The Official CBM 512K RAM exp	£44
512K RAM Expansion + Clock	£29
1.5 MB RAM Board (needs KS 1.3)	£75
GVP A500 50 MB HD + 2MB	£619
AT once AT Emulator for A500	£199
A590 20MB Hard drive	£264
A590 20MB Hard drive + extra 2MB	£319
A590 52MB Hard drive	£399
A590 52MB Hard drive + 2MB	£469
10 blank discs 100% guaranteed with PIN no in box	£6.99
50 blank discs 100% guaranteed with PIN no	£16.99
Randole 8802 Genlock	£179
G2 Genlock for 2000/1500	£649
A2300 internal genlock for 2000/1500	£99
A2088 XT Bridge Board, 640K, MS DOS 3.3 + 5.25" drive, for 2000/1500	£139
A2058 8MB RAM exp board, populated to 2MB, for 2000/1500	£199
8UP 8MB RAM exp board, pop to 8MB for 2000/1500	£349
A2630 68030 card, populated to 2MB for 2000/1500	£999
Microway Flicker Fixer for 2000/1500	£125
A2091/52MB Quantum Autoboot HD for 2000/1500	£349
A2091/100MB Quantum Autoboot HD for 2000/1500	£499
A1950 high res colour monitor for 2000/1500 (needs A2320) and 3000	£399
A500/1500 modulator	£23

COMMODORE PREMIER DEALER

Hobbyte proudly announce this highest CBM accolade, awarded to only the top few dozen CBM dealers offering the best in expertise and support. All Amigas full UK versions.

ORDERING:

TELESALES NO: (0727) 56005

Next day delivery for credit card orders placed before

4.00pm subject to availability. Alternatively

send cheque, postal order, bankers draft or official order

(PLCs, Education and Government bodies only) to: Dept.

AS, Hobbyte Computer Centre, 10 Market Place,

St. Albans, Herts AL3 5DG. Please allow 7 working days for

cheque clearance. Subject to availability, despatch is normally

within 24 hours of receipt of cleared payment. Prices are correct at

time of going to press, however, we are sometimes forced to

change them, either up or down. Please check before ordering.

DELIVERY CHARGES: UK Mainland (not Highlands)

Small consumables & software items

Other items, except lasers

Laser printers

Offshore and Highlands

Normal rate plus £20 + VAT per box

In addition we offer the following express services:

Saturday deliveries

7am to 9am next day

Am next day

Despatched by post, please check

charges when ordering

Next day courier service, £10 per box

Next day courier service, £17.50

Normal rate plus £20 + VAT per box

Normal rate plus £10 + VAT per box

Normal rate plus £10 + VAT per box

Normal rate plus £5 + VAT per box

CALLERS WELCOME AT OUR BRANCHES OPEN 9-5.30, Monday to Saturday

Amiga prices, except where stated are inc. VAT, E & O I

STEAR

TELE-ORDER (0727) 56005

continued from page 24

EXTRAS

There are lots of extras that turn an adequate word processor into a better one: features like mail merge, glossaries and macros, on-line help, automatic table of contents and index generation.

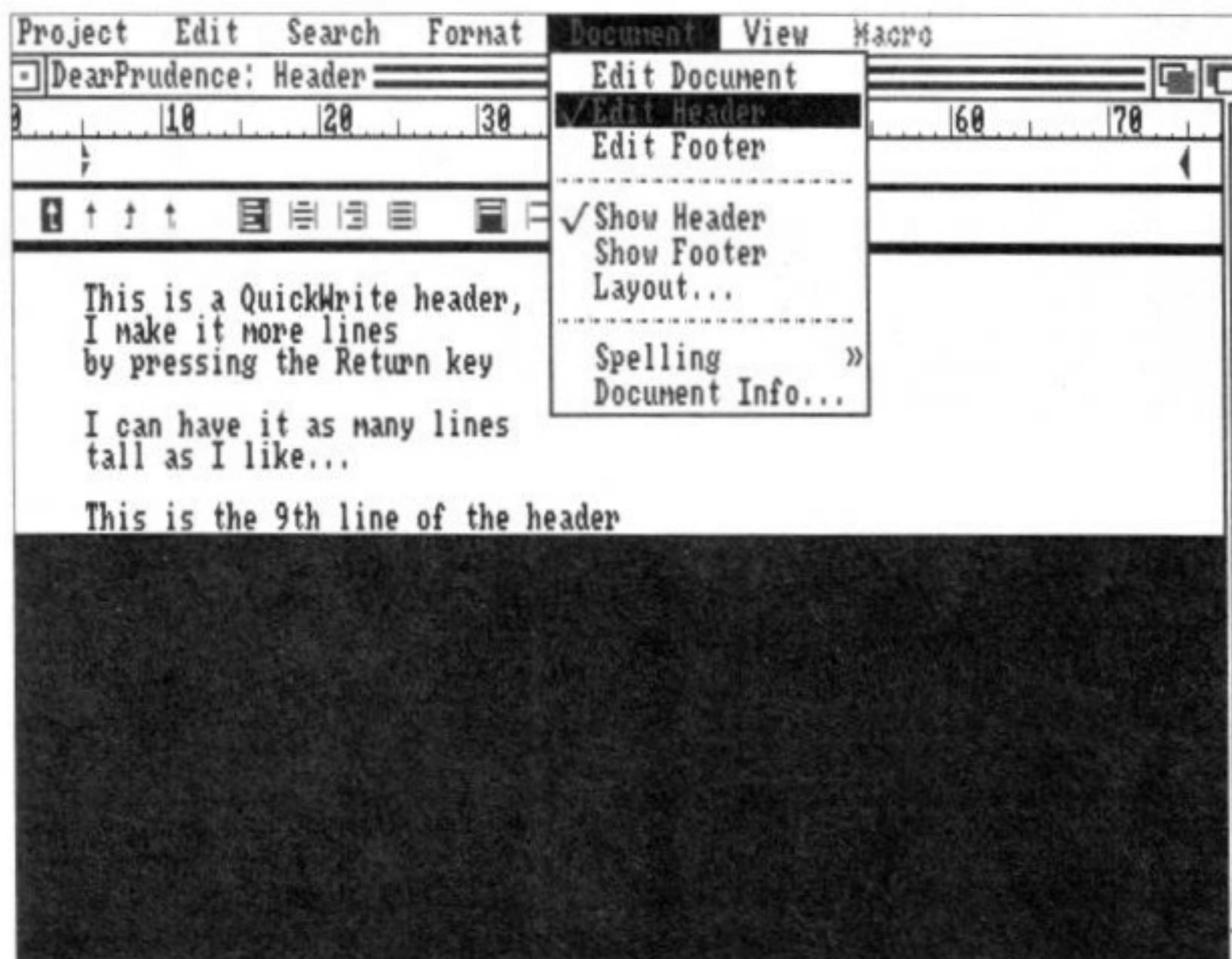
The only one of the word processors that is half-way serious about mail merge is *Protext*. They can all (including *Protext*) be set up to read a data file of names and addresses and print out a 'personalised' version of a standard letter to each name in the list, but what if you wanted to only send that letter to all those people on the database who lived in Manchester? Or to all the people aged between 21 and 35? Or to all the members whose subscriptions have lapsed?

Only *Protext* has the power to read a data field and make a decision one way or the other depending on the content of that field. All the other word processors require you to preprocess the data file using a database.

But with power comes complexity. You'll have to learn how to use *Protext*'s 'stored commands'. The manual gives plenty of examples and tries to keep away from the term 'programming' but that, in effect, is what you are doing because *Protext*'s stored commands comprise a small but powerful programming language.

I have seen a complete invoicing system and database written entirely using *Protext*'s stored command language – it was called *Protext Office* – not to mention a light-hearted 'dating agency' program which matched people of the same perversions to each other. (*I told you not to mention the light-hearted dating agency program which matched people of the same perversions to each other – Ed.*)

The language is similar in principal to Basic, but perhaps a little more difficult to master because each of the 'keywords' is



QuickWrite's header and footer generation is simple and effective.

only two letters long; the manual will be your constant companion here.

All the packages will let you use the word processor to create a data file, adhering to strict rules concerning what characters delimit fields and records. Along with this, *Wordworth* can read *Superbase* and *Mailshot Plus* files, *Protext* (v5.5) can read *Prodata* files, and *Pen Pal* can read the files created by its own built-in database.

FRONT AND BACK

The ability to create a table of contents (TOC) and an index is a massive help to technical writers – you can't imagine what tedious and time-consuming jobs these are to do manually unless you have ever had to do them.

If you're looking for these features, you haven't got a lot of choice – only *Excellence!*, *Protext* and *WordPerfect* can do both, while *TransWrite* can generate a simple index but not a TOC. By 'simple' I mean that every marked word or phrase appears in the index list in alphabetical order, there is no facility

in *TransWrite* for creating index sub-headings with an indented list of related topics below.

TransWrite's strength is that you only have to mark the first occurrence of a word for the page number of every occurrence of that word in the document to appear in the index.

Excellence!'s index and TOC generation does not cater for sub-headings either, and only those words or phrases marked will appear in the lists, meaning that you have to mark every occurrence of something to do the job properly – search and replace speeds this job up. It's the same with *Protext* and *WordPerfect*, but both of these allow for index and TOC headings and sub-headings.

ON THE BUTTON

Macros are time savers. They are lots of keypresses collected together and executed by pressing a single key. A macro could be something as simple as a commonly used word or phrase, or something more complex like a collection of text editing or document formatting keypresses or menu selections. Some word processors call this feature a 'glossary'.

Only *KindWords*, *Pen Pal*, *Personal Write* and *Scribble!* have no macro support at all, while *ProWrite*'s and *QuickWrite*'s macros work via their ARexx ports (which means you have to buy, install and learn how to use another program called ARexx).

Wordworth's macros are restricted to commonly used words and phrases, which is admittedly what most people use them for, but you couldn't, for instance, press a single key to get *Wordworth* to mark the paragraph the cursor is on, open a new document and copy that paragraph into the new document.

Protext will let you do this, but only if the operation can be achieved by issuing keypresses or commands – any menu selections are ignored, although to be fair most operations of the program can be achieved by typing commands at the *Protext* command line.

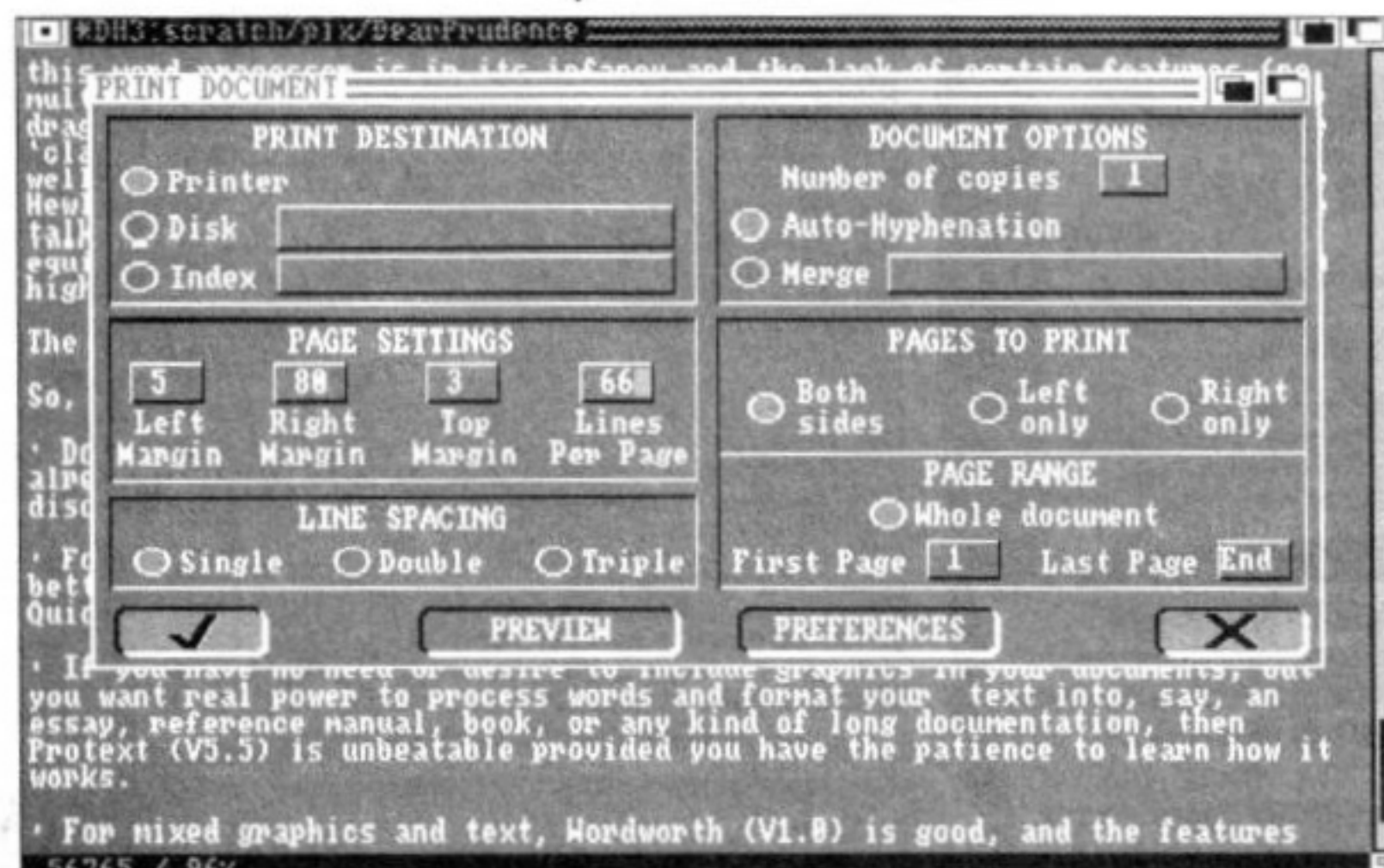
TransWrite's macros can include commands as well as words, but you are restricted to just 10 of them.

WordPerfect's macro system is different in that it allows you to set up a macro to do anything at all you want, but as well as assigning macros to single keypresses you can give them filenames and execute them from disk at any time. Actually, *Protext* can do this too, although it calls them 'exec' files because (unsurprisingly) they are files of commands that get executed.

Protext and *WordPerfect* are extremely flexible in the macro department, but both are rather user-unfriendly, even though both can 'record' the macros rather than forcing you to enter a complicated string of special commands. What we want is a macro facility as powerful as *WordPerfect*'s or *Protext*'s, but as simple to use as *Wordworth*'s.

Once again, *Excellence!* excels. Macros in *Excellence!* are defined by typing them once, highlighting them and then giving them a name and an optional keypress in the glossary requester. These macros can include graphics as well as words. Text editing and document formatting commands – in fact anything that can be selected from a pull-down menu – are defined by using special commands between curly braces. For example, {menu font, times, 12 point} would define that menu and sub-menu selection as a macro. It's a simple system to use, and because you give macros names (subsequently selected from a list in the glossary requester) as well as keypresses it's user-friendly as well as fast and flexible.

continued on page 29



TransWrite has a fairly wide range of printer output options.

CHECKOUT EXTRAS

Excellence!	● ● ● ● ●
KindWords	● ● ● ● ●
Pen Pal	● ● ● ● ●
Personal Write	● ● ● ● ●
Protext	● ● ● ● ●
ProWrite	● ● ● ● ●
QuickWrite	● ● ● ● ●
Scribble!	● ● ● ● ●
TransWrite	● ● ● ● ●
WordPerfect	● ● ● ● ●
Wordworth	● ● ● ● ●

KCS POWER

INCLUDING
MS-DOS 4.01 - DOS HELP
Shell - Manuals
GW-Basic (No Manual)

**PC BOARD**

INCLUDING
1 Meg On-board Ram Plus
Half Meg Ram Disk
Battery-Backed Clock In
Amiga and PC Mode

SPEED	"Fastest Screen update of any Amiga PC Emulator"	NCE/March 91
	"Faster than many 286 AT's"	A.Format/Oct 90
COMPATIBILITY	"Excellent. All the s/w I tried ran perfectly."	C. Shopper/Feb 91
STABILITY	"20/20. Faultless operation from day 1"	A. Shopper/June 91
CONVENIENCE	"Unbeaten, for a plain plug 'n' go PC emulator there is no competition."	Computer Shopper/Feb 91

ALL UPGRADES ARE SOFTWARE BASED

NOW SUPPORTING MORE HARD DRIVES - RING FOR DETAILS

VISA ONLY £199.99 Excl Vat. (Postage Incl) (£234.99 Incl) **Access**

Bitcon Devices Ltd, 88 Bewick Road, Gateshead, NE8 1RS. UK.

Tel: 091 490 1919. Fax: 091 490 1918

Trade Enquiries Welcome, UK & Export. See our main Ad next month

PROFESSIONAL T.V. - VIDEO AMIGA GRAPHICS SYSTEMS

COMPUTERS - GENLOCKS - SOFTWARE - TRAINING

PHONE: 071-284-1366

REPAIRS

NO FIXED CHARGE - COMPETITIVE RATES

PHONE: 071-284-4030

44 MALDEN RD, LONDON N.W. 5
(CAMDEN TOWN)



Switchable
voice/fax line

0983 79496

Open 10am-7pm
Monday to Saturday



ACCOUNTS	PageSetter 2.....47.00	PACKAGES	ARexx.....33.84
Arena Integrated Ac.....122.67	Pagestream 2.1.....139.59	Appetizer.....30.55	B.A.D. Optimiser.....31.96
Cashbook Combination.....49.82	Pro Clips Str. Art.....23.97	Graphics Starter Kit.....56.40	BBC Emulator.....35.72
EasyLedgers.....153.46	Pro Page 2 2Mb.....179.54	Office By Gold Disk.....99.64	Byte 'N' Back.....20.45
Home Accounts.....24.44	Structured Clip Art.....37.60	Starter Kit.....51.23	CrossDOS.....24.91
Personal Finance Mgr.....25.85		The Works Platinum.....79.90	Directory Manager.....35.72
SBA Xtra.....81.78			Disk Master 1.4.....39.95
System 3 Integrated.....39.95			Doctor Ami.....40.89
BOOKS 34 Lines Stocked			DOS 2 DOS.....30.55
68000 Asm Lan Prgmng.....21.95			Enhancer 1.3.....15.04
Assembly Lang Prgmng.....14.95			GB Route Planner.....Query
Amiga Basic In/Out.....18.95			Mavis Beacon Typing.....27.73
Amiga C Beginners.....18.45			Quarterback HD Backup.....39.95
Desktop Video Guide.....18.45			Quarterback Tools.....61.10
Disk Drives In/Out.....27.95			VIDEO
Amiga For Beginners.....12.95			Deluxe Video 3.....59.69
System Programs Guide.....32.95			Digi View Gold 4.....109.98
AmigaDOS Inside & Out.....18.45			Hitachi Camera/Lens.....204.45
Hardware Ref Manual.....21.95			Home Titrer.....34.78
Incs & Docs; ROM Mnl.....28.95			Minigen Genlock.....101.99
Kids And The Amiga.....14.95			Scala Presentations.....189.88
Libs & Devs; ROM Mnl.....29.95			Video Titrer.....84.60
Mapping the Amiga.....20.95			Vidi Complete Soltn.....159.80
CABLES 100 Lines Stocked			WORDPROCESSORS
D23S-D15P NEC MS 3D 14.10			Excellence 2.....94.94
D25P-D25P 25W 2M.....13.16			Kidtype.....25.38
D25P-C36P 2M Printer.....6.58			Kindwords 2.....35.72
D25P-D25P 9W 2M Mod.11.28			PenPal 1.3.....79.90
DINSP-DINSP MIDI.....5.17			Protext 4.3.....69.56
Null Modern Cable.....12.22			Protext 5.....101.99
Gender Changers.....7.99			ProWrite 3+.....101.99
Fast File Transfer.....35.72			QuickWrite.....39.95
Socket D23S & Hood.....5.17			Scribble Platinum.....42.77
Switch Box D25S X 2.....25.38			TransWrite.....32.90
COMMUNICATIONS			Wordperfect.....189.88
A Talk 3.....69.56			Wordworth.....99.64
COMPUTER AIDED DESIGN			SPECIALS (phone condition)
3D Construction Kit.....44.65			Battlechess.....15.51
Design 3D.....59.22			Deluxe Paint 3.....49.82
Professional Draw 2.....99.64			Deluxe Video 3.....59.69
X CAD Designer.....79.90			Pagestream 1.8.....79.90
DATABASE MANAGERS			Populous & Prom Lands.....19.74
Bible Reader.....46.06			Pro Page 1.3.....99.64
Image Finder (HotKey).....49.82			Sim City & Terrain Ed.....19.74
InfoFile.....46.06			The Works Platinum.....79.90
Mailshot Plus.....39.01			Their Finest Hour Sim.....18.33
Prodata.....55.93			
Superbase Personal.....27.73			
Superbase Personal 2.....59.69			
Superbase Pro 3.....159.80			
Superbase Pro 4.....249.57			
Weather Watcher.....25.38			
DESKTOP PUBLISHING			
AmigaTex.....111.39			
Clip Art PD 15 Disks.....29.61			
GDType; Video HD.....31.96			
GDType; Designer HD.....31.96			
GDType; Publisher HD.....31.96			
GDType; Decor HD.....31.96			
Outline Fonts.....99.64			
HARDWARE			
1.3 Kickstart ROM.....30.55			
3.5" Int 2000 Drive.....59.69			
3.5" External Drive.....59.69			
512K A500 RAM/Clock.....29.61			
A590 20Mb Hard Drive.....286.23			
A590 With 2Mb RAM.....357.67			
A590 SCSI Exp Sys.....109.98			
Amiga 1500.....643.90			
Citizen 124D 24 Pin.....199.75			
Citizen Swift 24.....289.99			
Fatter Agnus.....61.10			
Naksha Mouse & Game.....29.61			
RAM Chip 256K CMOS.....6.11			
Star LC24-200 Colour.....309.73			
SupraRAM A2000 0-8Mb 119.85			
SupraRAM A500 0.5-8Mb 129.72			
SCSI HD Case/PSU/Lead.....109.98			

OMEGA POWER OPTIONS

GVP A500 IMPACT SERIES 2 HARD DRIVE

EXPANDABLE TO 8 MEGABYTES OF RAM USING SIMMS

42Meg Drive 479.95

52Meg Drive 529.95

GVP SERIES 2 1500/2000 8Meg Memory Cards

WITH 2 Meg RAM ONLY 179.95

WITH 4 Meg RAM ONLY 259.95

WITH 8 Meg RAM ONLY 419.95

GVP SERIES 2 FAAAST CARD + HIGH SPEED SCSI

SCSI + EXPANDS UPTO 8Meg USING SIMMS

OK NO DRIVE 200.00

THIS BOARD WILL ACCEPT ANY OF THE BARE

SCSI DRIVES OPPOSITE

EACH 2Meg OF SIMM MODULES 79.95

GVP 68030 ACCELERATORS

GVP A3001 for A1500/2000

28Mhz 68030/68882 + 4Meg 32bit Ram 1349.95

50Mhz 68030/68882 + 4Meg 32bit Ram 2099.95

HARMES PRO30 ACCELERATOR BOARD

Medium priced 68030 Accelerator card running at 25/28Mhz + 68882

Ge-Pro + 2 or 4Meg of 32 bit wide ram for A1500/2000 1249.95

CSA MEGA MIDGET RACER

A500/1500/2000

25/33Mhz 68030, 20Mhz TO 50Mhz 68882

SRAM Available to shadow KICKSTART into 32 bit ram and

1 - 8 Meg of TRUE 32 bit wide ram.

PRICES START AT 399.95 FOR 25Mhz BASE BOARD

CALL FOR MORE DETAILS

ABOUT OUR UPGRADES

& BUY BACK POLICIES

FULL TECHNICAL SUPPORT IS GIVEN BY INHOUSE

FULLY EXPERIENCED ENGINEERS

512K RAM INC. CLOCK & SWITCH 25.49

512K RAM NO CLOCK 22.43

Send S.A.E (A5 size) for full brochure

and price list

WE TAKE ACCESS & VISA CARDS.

SPEED UP YOUR
A500/2000 WITH OUR

68000

14Mhz SWITCHABLE

43.42

PHONE FOR MORE DETAILS

HARD DRIVING !!!!!!!

A590	20Meg	W. DIGITAL	IDE	319.95
A590	52Meg	QUANTUM	SCSI	499.95
A590	105Meg	QUANTUM	SCSI	649.95
A590	120Meg	QUANTUM	SCSI	764.95
A590	170Meg	QUANTUM	SCSI	859.95
A590	210Meg	QUANTUM	SCSI	929.95

ADD 60.00 FOR 2 Meg RAM IF PURCHASED WITH ANY OF THE ABOVE DRIVES.

BARE SCSI/IDE DRIVES

W.DIGITAL	85Ms	20Meg	89.95
SEAGATE	28Ms	20Meg	89.95
QUANTUM	17/9Ms	52Meg	239.95
QUANTUM	17/9Ms	105Meg	391.95
QUANTUM	15/8Ms	120Meg	606.95
QUANTUM	15/8Ms	170Meg	697.95
QUANTUM	15/8Ms	210Meg	670.95

QUANTUM is the ROLLS ROYCE of Hard Disks. Do not be misled by cheaper/slower systems incorporating inferior drives. Quantum are so sure that their drives are the best that they give a 2 YEAR WARRANTY on the units. As the saying goes "YOU GET WHAT YOU PAY FOR"

INJECTION MOULDED CASE FOR BARE DRIVES, INCLUDING FAN, PASS-THRU, SCSI LEAD, AND POWER LEAD 90.00

ALL DRIVE CAPACITIES QUOTED ARE UNFORMATTED

A1500/2000 52Meg Hard disk card QUANTUM 399.95

A1500/2000 105Meg Hard disk card QUANTUM 499.95

OMEGA PROJECTS

14 DERWENT CLOSE
CULCHETH, WARRINGTON
CHESHIRE, ENGLAND
WA3 5DY



0925-763946

0860-795260

The

**Are you confused by CLI?
Baffled by backups?
Frustrated by files?
Now your problems are over.**

WORKSTATION

It's no secret that the Amiga is the most powerful home computer of them all. What has remained a mystery for most newcomers is how to make the most of its immense potential. Now the answer is here: **The WorkStation**. A floppy disk packed with everything you need to take the hassle out of harnessing the inbuilt power of your Amiga. Many months of research and testing have resulted in a **simple-to-use**, single disk replacement for Commodore's Workbench.

This indispensable collection of utilities, including some outstanding shareware never before assembled together on one disk, is now available for just £3.75.

It's too good to miss!

Got a faulty floppy? When vital disks get damaged, you'll now have the chance to try the seemingly impossible mission of recovering all your work. Workbench's geriatric DiskDoctor can be sent into retirement by this super utility!

The ability to design custom icons as standard is virtually unique to computers in the Amiga's class. The WorkStation turns your Amiga into a comprehensive design studio, providing a wide range of graphic tools that can make icon creation child's play.

Heart of The WorkStation is a powerful shareware package called SID. When you use it you can say goodbye to faceless blank screens and complex commands. Instead your mouse takes full control. Fiddle with files, display text and graphics, sample sounds, uncrunch archives... all this and more with just a click of a mouse button.

Aspiring artists: Here's the package you've been waiting for! Using nothing more than your trusty mouse you can now freeze and store any Amiga screen that runs under Workbench. Grab screens from your favourite PD game and "edit" those high scores using any popular paint package.

Putting print to paper? The WorkStation disk includes a superb text editor. This powerful package has an unashamedly no-frills approach to producing and formatting professional looking text that would be envied by many of the more expensive commercial products.

The WorkStation has a fully configured dynamic recoverable ram drive which acts like an extra invisible drive to your Amiga. It's a vast improvement on the standard Amiga drive because it is very flexible and goes easy on memory.

PLUS! PLUS! PLUS!

As well as all these superb features The WorkStation also includes a wide range of programs designed to make life with your Amiga a whole lot easier. There are simple solutions to everyday problems, such as mouse utilities which display screen co-ordinates and give your rodent a much needed speed boost.

ORDER FORM

Please send me a WorkStation disk for the special offer price of £3.75 (incl. 25p p&p). 9999

I wish to pay by: ☐ Cheque/Eurocheque enclosed made payable to Europress Direct
☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

No.

Expiry date

Name Signed

Address

..... Postcode

Send to: Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB

Order at any time of the day or night

PHONE ORDERS: 051-357 1275. FAX: 051-357 2813

Don't forget to give your name, address and credit card number

All this
- and much,
much more for just

£3.75

Including fully detailed,
easy-to-understand
manual

continued from page 26

MANUALS

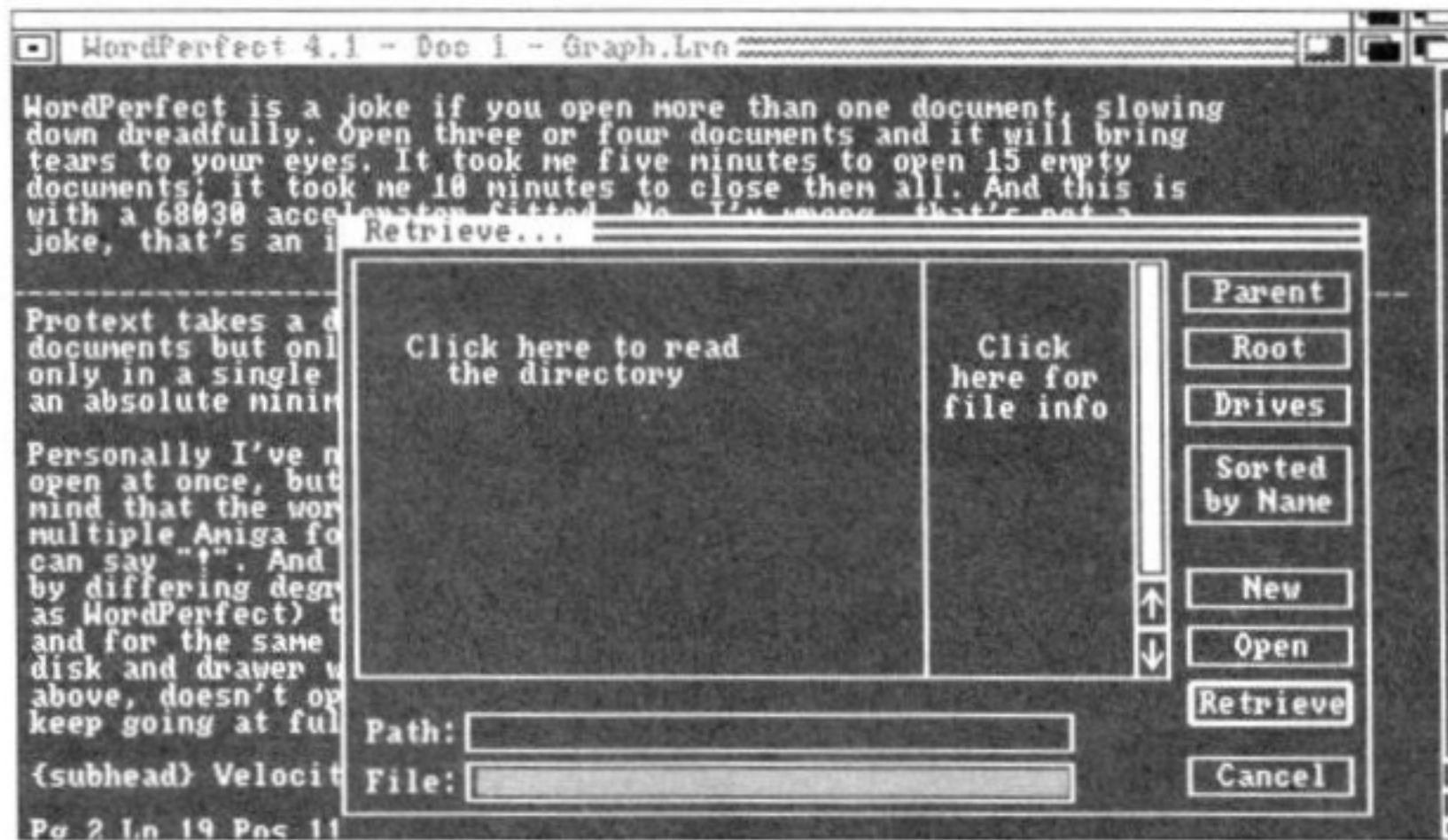
The more powerful a word processor is, the more features it has, and the better the documentation needs to be so that the user can access the full functionality of the program.

For beginners there needs to be a good tutorial which encompasses most of the commonly-used features, followed by one or more tutorials to show how the advanced features work. For people who are using the software day after day in some kind of professional capacity, there needs to be a comprehensive reference section, and a good index so that topics can be found quickly.

KindWords, *QuickWrite* and *TransWrite* are so easy to use that they don't need big manuals. You could use any of these three for years and never feel the need to look in the book. Which is just as well because they are slim paperbacks that wouldn't stand up to a lot of mauling. *Scribble!* is pretty easy to use as well, although the manual will be needed to learn how to format documents using its 'dot' commands. The manual describes these adequately but is short on examples. A hardcover ring-folder ensures that the *Scribble!* manual will stand up to continued use.

WordPerfect's manual is unbelievable; I've never seen one like it. More than 600 A5 pages in a thick hardcover ring-folder, it is a step-by-step guide to almost every single facility the program offers. The tutorial is about 230 pages long and structured into 29 easy-to-follow lessons. But there's an awful lot to take in, and even the 'reference' section is really another tutorial, taking you through each individual feature step by step, sometimes a little hurriedly. You need the manual to learn how to use *WordPerfect*, and you will need time and patience to work through it.

Excellence!'s manual is the same physical size as *WordPerfect's*,



WordPerfect has a reasonably sophisticated file requester.

but it only contains half as many pages. The paper is twice as thick, and a lot of pages have only a few lines on them; those pages that are 'full' leave a two-inch bottom margin. The same amount of information could have been presented in a third of the space. But then the manual wouldn't look so impressive, would it... There's nothing wrong with what's on the pages, everything is described adequately, and after an initial read-through you probably won't need to pick it up again.

ProWrite's manual is about on a par with *Excellence!*'s (adequate), but it comes on 200 spiral-bound pages between soft covers. Far more ecologically sound. The index is poor, making some features hard to find if you need to read-up about them.

Personal Write hails from Italy and the manual has plainly been translated into English by an Italian. While it just about succeeds in getting its message across, these are some of the most long-winded 160 pages I have ever had to read. It's entirely possible that *Personal Write* has some features I have yet to find. It was only while re-reading the section on mail merge that I discovered that *Personal Write* will let you embed printer control codes in the text in order to change printer styles, fonts or colours. The manual

is badly structured and translated, but at least it does come in a hardcover ring-folder which will stand up to being thrown at the wall in frustration.

Protext's main manual is almost 400 A5 spiral-bound pages. It's absolutely crammed with reference information and, not surprisingly, has a comprehensively cross-referenced index, enabling you to go straight to the pages which discuss any particular feature. A tutorial manual is also supplied, along with an advanced manual dealing with creating your own *Protext* printer drivers. As with *WordPerfect*, the *Protext* manual will need to be kept constantly by your side for quite a while before you've really got the hang of all the program's features.

I've left *Pen Pal* and *Wordworth* until last because their manuals (both softcover, spiral-bound) deserve special mention. Screen shots or diagrams on almost every page, well written text, expertly laid out with unhurried step-by-step examples of how to use almost every feature. Both have good tutorials, tips on getting the best results, and well-indexed reference sections. Neither can be faulted without picking for nits. My hat comes off to Softwood and Digita for taking the time and trouble to get it right.

FINALLY...

It would be unfair to pick a 'best' word processor from the 11 on test because we are not comparing like with like. Even if we split them into two categories, yes-graphics and no-graphics, the massive differences in price have to be taken into consideration.

So, rather than throw unexplained 'blob ratings' at you, in conclusion I will point out what I consider to be the main assets and pitfalls of each word processor.

ON A TIGHT BUDGET?

I would not recommend *KindWords* at all. While it is the cheapest word processor that has a graphics capability, and while it is certainly easy to learn how to use, it is slow, quirky, inflexible, and it crashes far too often for my liking. Yes, you can process words with it. But why anyone would want to will forever remain a mystery to me. The 'feel' of a word processor is every bit as important as the features. *KindWords* feels like it would much rather you used another program to process your words with.

But cheap doesn't always mean nasty. Take *Personal Write*. It, too, has a quirky feel to it, but it's as good for bashing out words as any word processor I have ever used, and it has a quite versatile PostScript output option to boot, which partly makes up for its lack of much in the way of really powerful document formatting features.

However, if bashing out words is all you need a word processor for, *TransWrite*, at £40 rrp, will do nicely. It's lightning quick, easy to use, and don't forget that it comes with a spelling checker and has some quite powerful document formatting commands. It can also be used to create indexes.

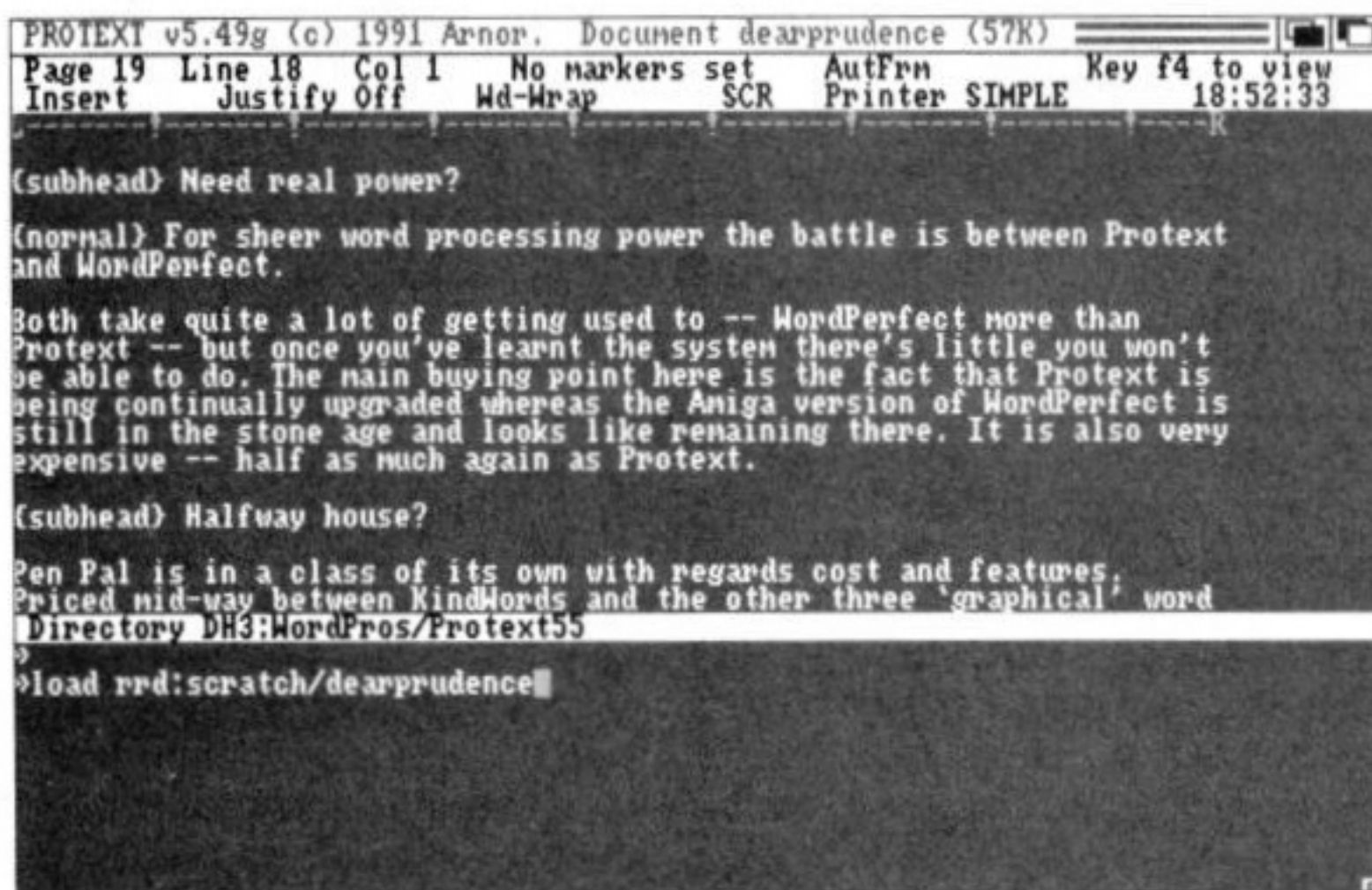
The other two packages I'd put in this 'word bashing' class are *Scribble!* and *QuickWrite*. For an extra £10 you are getting a thesaurus and a few more document formatting features, but nothing to write home about. After all, *QuickWrite* is a cut-down version of *ProWrite* and *Scribble!* is from the same people as *Excellence!*.

NEED REAL POWER?

For sheer word processing power, the battle has to be between two contenders: *Protext* and *WordPerfect*.

Both take quite a lot of getting used to – *WordPerfect* more than *Protext* – but once you've learnt the system there's little you won't be able to do. The main buying point here is the fact that *Protext* is being continually upgraded, whereas the Amiga version of *WordPerfect* is still

continued on page 30



Protext's earlier versions were on other machines – and it sometimes shows!

CHECKOUT MANUALS

Excellence!	● ● ● ● ●
KindWords	● ● ● ● ●
Pen Pal	● ● ● ● ●
Personal Write	● ● ● ● ●
Protext	● ● ● ● ●
ProWrite	● ● ● ● ●
QuickWrite	● ● ● ● ●
Scribble!	● ● ● ● ●
TransWrite	● ● ● ● ●
WordPerfect	● ● ● ● ●
Wordworth	● ● ● ● ●

WORD PROCESSORS ON TEST

This is by no means a full and comprehensive chart of every feature of all the word processors on test. There are many features common to every word processor, most notably in the text editing and document formatting departments; things like marking blocks, cut/copy/paste, multiple page

sizes, multiple measurement systems and so on – far too many to mention. These common features have been omitted from the chart for the sake of clarity – row upon row of 'Yes' under every heading would not be a lot of help to anyone.

	EXCELLENCE!	KINDWORDS	PEN PAL	PERSONAL WRITE	PROTEXT
TEXT EDITING					
Multiple documents	Yes	No	Yes (4)	Yes	Yes (36)
Place markers (for quick goto)	No	No	No	Yes (1)	Yes (9)
Timed autosave	No	No	No	No	Yes
DOCUMENT FORMATTING					
Rulers	Multiple	Multiple	Single	None	Multiple
Multiple fonts	Yes	Yes	Yes	No	No
Multiple columns	4 snaking	No	No	No	cut-and-paste
Headers/Footers	Yes/Yes	Yes/Yes	Yes/Yes	Yes/No	Yes/Yes
Footnotes/Endnotes	Yes/No	No/No	No/No	No/No	Yes/Yes
Page numbering	arab	arab/rom	arab	arab/rom	arab
Facing pages	Yes	No	Yes	No	Yes
Widow/orphan control	No	No	No	No	Yes
Automatic hyphenation	Yes	No	No	Yes	Yes
Mix text and graphics	Yes	Yes	Yes	No	No
GRAPHICS					
IFF import up to ...	32 colours	32 colours	4,096 colours	No gfx	No gfx
Move/Resize/Crop	Yes/Yes/Yes	Yes/Yes/Yes	Yes/Yes/Yes		
Vertical text flow	No	No	Auto/Manual		
Contour text flow	No	No	Auto/Manual		
Show/hide graphics	No	No	Yes		
Snap to grid	No	No	Yes		
Drawing tools	None	None	Lines/boxes/fills		Lines (IBM)
PRINTING					
Embed printer control codes	No	No	No	Yes	Yes
Use multiple printer fonts	No	No	No	Yes	Yes
Mix graphics and printer fonts	Yes	No	Yes	No	No
Amiga font output	Yes (lo-res)	Yes (lo-res)	Yes (lo-res)	No	No
Best IFF graphics output	8 cols/greys	16 cols/greys	4,096 cols/greys	None	None
PostScript	Yes	No	No	Yes	No
SPELLING CHECKERS					
Dictionary supplied	USA	USA	USA	None	UK
Number of words	90,000	100,000	110,000		110,000
Quick dictionary	No	No	1,500		500 or 5,000
User dictionary	Yes	Yes	Yes		Yes
THESAURUSES					
Thesaurus supplied	USA	USA	None	None	UK
Words	unspecified	40,000			43,000
Cross references	unspecified	470,000			827,000
EXTRAS					
Mail merge	simple	simple	simple	simple	simple/conditional
Index/TOC creation	Yes/Yes	No/No	No/No	No/No	Yes/Yes
Glossary/Command macros	Yes/Yes	No/No	No/No	No/No	Yes/Yes
On-line help	None	Brief	Full	None	Full
Printed pages screen preview	Yes	No	Yes	Yes	Yes
VERSION ON TEST	v2.00b	v2.0	v1.3 Rev 18	v3.0	v5.5

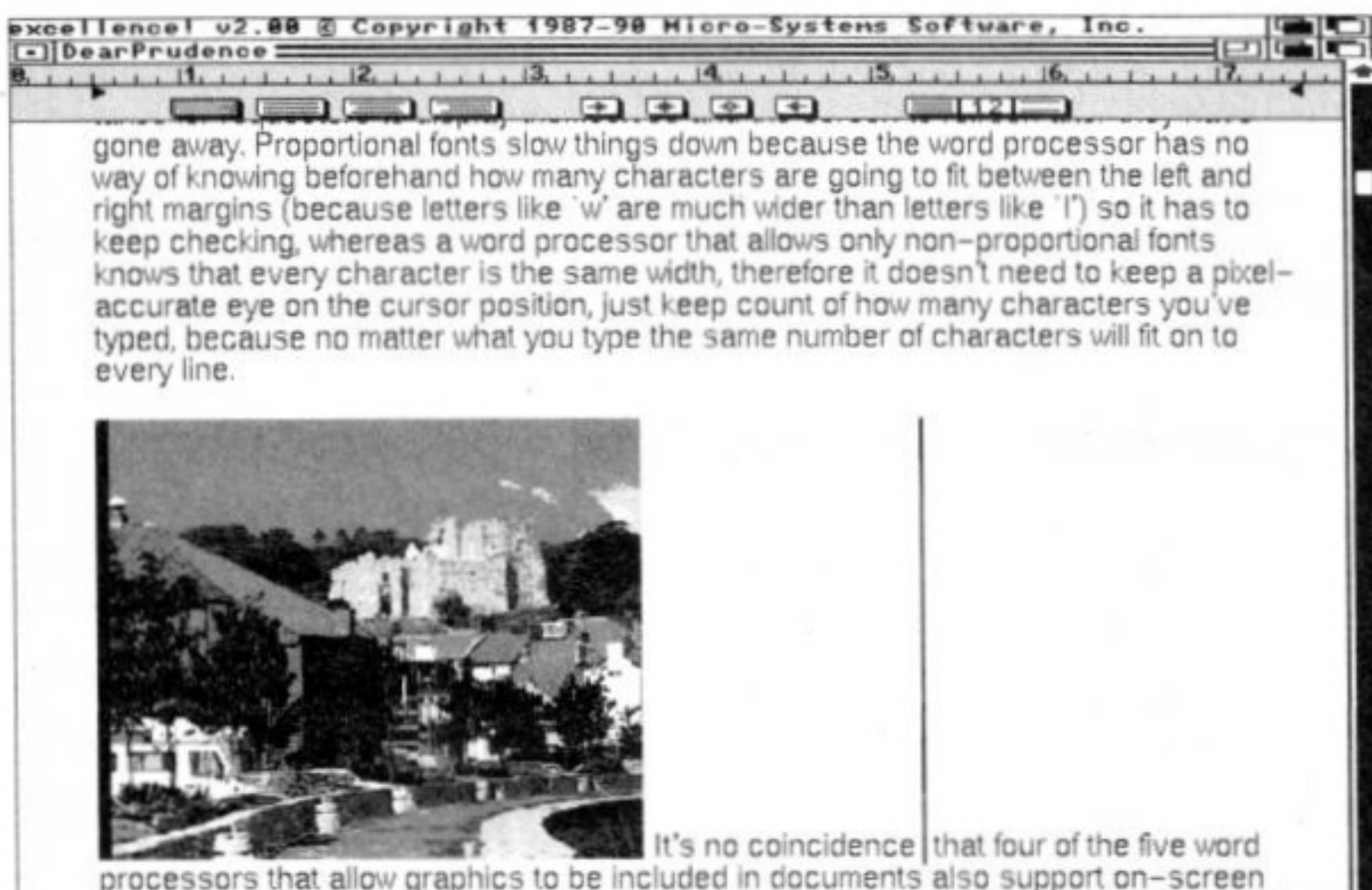
— THE FEATURES CHART

Instead of listing every single feature, we have picked out about 40 features which we consider raise an ordinary word processor from the 'casual-user' category into the realms of a serious, professional productivity tool.

We do not advise that you make your decision on which word processor to buy just on the strength of the table below. Instead you should read the accompanying feature and decide which features are the most important to you.

PROWRITE	QUICKWRITE	SCRIBBLE!	TRANSWRITE	WORDWORTH	WORDPERFECT
Yes (8)	Yes (10)	Yes (4)	Yes	Yes (100)	Yes
No	No	No	Yes (4)	No	No
No	No	No	No	Yes	Yes
Multiple	Single	None	None	Multiple	None
Yes	No	No	No	Yes	No
5 snak/par	No	No	No	No	5 snak/par
Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
No/No	No/No	No/No	No/No	No/No	Yes/Yes
arab/rom/alph	arab/rom/alph	arab	arab	arab/rom/alph	arab/rom/alph
Yes	No	Yes	Yes	Yes	Yes
No	No	No	Yes	No	Yes
No	No	No	Yes	Yes	Yes
Yes	No	No	No	Yes	No
4,096 colours	No gfx	No gfx	No gfx	4,096 colours	No gfx
Yes/Yes/No				Yes/Yes/No	
Manual only				Auto/Manual	
Manual only				Auto/Manual	
Yes				No	
No				No	
None				None	
No	No	Yes	Yes	No	Yes
No	No	Yes	Yes	No	Yes
Yes	No	Yes	No	Yes	No
Yes (hi-res)	No	No	No	Yes (hi-res)	No
8 cols/greys	None	None	None	16 cols/greys	None
needs ProScript	No	No	No	No	No
USA/UK	USA	USA	USA	UK	USA
100,000	50,000	103,000	unspecified	110,000	115,000
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
USA	None	USA	None	UK	USA
unspecified		unspecified		30,000	unspecified
300,000		470,000		140,000	unspecified
simple	simple	simple	simple	simple	simple
No/No	No/No	No/No	Yes/No	No/No	Yes/Yes
needs ARexx	needs ARexx	No/No	Yes/Yes	Yes/No	Yes/Yes
None	None	None	Brief	Full	Full
No	No	Yes	Yes	No	Yes
v3.1.1	v1.0	v3.05	v2.0	v1.0	v4.1.12

continued on page 32



Excellence!'s ruler allows easy formatting of the text.

continued from page 31

in the stone age and looks like remaining there. *WordPerfect* is also very expensive – half as much again as *Protext*.

HALFWAY HOUSE?

Pen Pal is in a class of its own with regards to cost and features. Priced mid-way between *KindWords* and the other three 'graphical' word processors, it handles pictures superbly, it even lets you draw lines and boxes, but its Amiga font output is poor and there is no support for embedding printer control codes within the text in order to manipulate the built-in fonts of a printer.

But then, it does come with a superb, albeit simple, database.

But then again, it can't do multiple columns.

And it doesn't have macros.

And it can't create an index or table of contents.

It really is sitting in a little no man's land of its own, neither here nor there. Which is a crying shame because *Pen Pal* is a pleasure to use, having arguably the best 'feel' and friendliest user-interface of the lot. All it would take would be higher-quality text output to raise *Pen Pal* to the top of the tree because it is so much cheaper than its competitors.

MAKING IT PRETTY

As far as incorporating fancy fonts and IFF graphics into your documents is concerned, sadly none of the 'graphical' word processors is entirely satisfactory.

Excellence!'s Amiga font output is on a par with *Pen Pal*'s (poor), and its graphics capability is worse, effectively restricted to eight colours or fewer, so it's fine for black-and-white clip art for example, but there's no proper text flow at all. However, it does have a limited PostScript support and some truly excellent features, like its thesaurus and glossary, that stand head and shoulders above the others.

ProWrite is a big disappointment. Its Amiga font output is good because of its 'scaling' trick, and while its graphics support appears to be excellent on the face of it, the colour output I've seen can only be classed as adequate, and black-and-white output is poor. On top of this, *ProWrite* cannot automatically flow text around a graphic, it has to be done manually. And to get PostScript and macros support you need to spend more money on *ProScript* and *ARexx*, which is a diabolical liberty considering *ProWrite*'s price.

Wordworth's Amiga font output is as good as *ProWrite*'s, and its graphics support is excellent thanks to the brilliant colour mapping facility. But this word processor is in its infancy and the lack of certain features (no multiple columns, limited macros, no index or table of contents generation) drags it down from the high pedestal it may one day occupy. Support for the 'classic 35' PostScript fonts is being added for an "imminent" version 1.1, as is support for many more built-in printer fonts, like those inside the Hewlett-

Packard range of LaserJet and InkJet printers, but there will be others – and we're talking proportional printer fonts here with correct width on-screen equivalents – which will mean that you'll be able have graphics and mix-and-match high quality proportional printer fonts within a single document.

THE BOTTOM LINE

So, all things considered, I have four concrete recommendations to make to anyone considering purchasing a word processor.

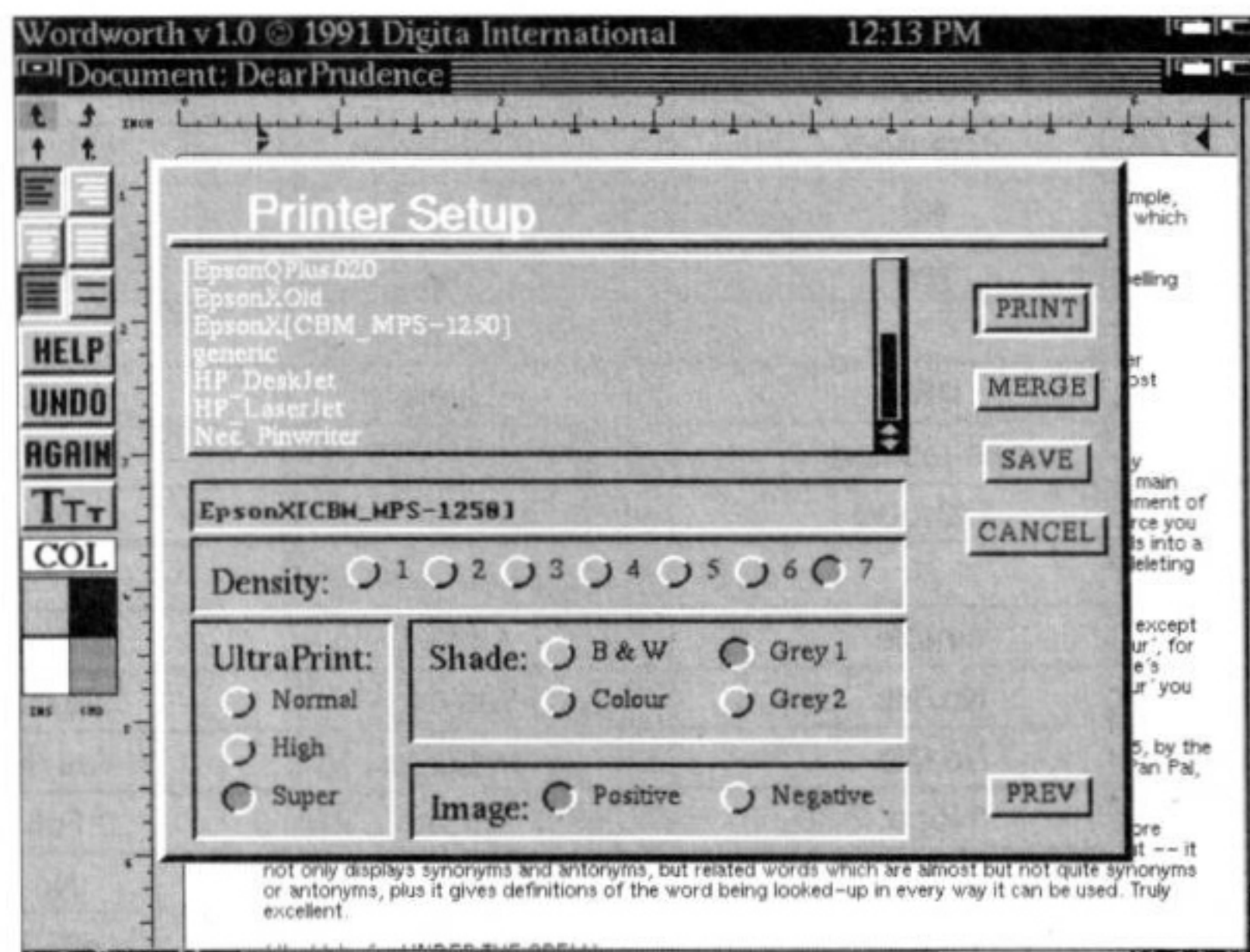
- Don't buy *KindWords*, you will almost certainly live to regret it. If you already own *KindWords*, consider trading it in with *Digita* for a £30 discount off *Wordworth*.

- For bashing out words quickly and cheaply, *TransWrite* (v2.0) is a lot better than its price suggests. I'd certainly rate it above *Scribble!* and *QuickWrite*.

- If you have no need or desire to include graphics in your documents, but you want real power to process words and format your text into, say, an essay, reference manual, book, or any kind of long documentation, then *Protext* (v5.5) is unbeatable – provided that you have the patience to learn how it works.

- For mixed graphics and text, *Wordworth* (v1.0) is good, and the features being added to the "imminent" version 1.1 upgrade will raise it way above the standard of *Excellence!* and *ProWrite*.

And it pleases me no end to remind you that both *Protext* and *Wordworth* are British products. Which, putting guns and flags and patriotism aside, means that technical support can be supplied by the developers, instead of the developers' UK agents or a company in the States, and is quicker, easier and cheaper to get at than staying up at night to ring a US helpline. **AS**



Wordworth has a comprehensive printer setup requester.

SHOPPING LIST

Excellence!£117.44

By Micro Systems Software, Inc.
☎ 010 1 407 790 0772

KindWords£51.03

By The Disc Company, Inc.
☎ 010 1 313 665 5540

Personal Write£29.95

By Cloanto Italia

ProWrite£143.00

By New Horizons Software, Inc.
☎ 010 1 512 328 6650

QuickWrite£51.03

By New Horizons Software, Inc.
☎ 010 1 512 328 6650

Scribble!£51.03

By Micro Systems Software, Inc.
☎ 010 1 407 790 0772

TransWrite£40.82

By Gold Disk, Inc.
☎ 010 1 416 828 0913

WordPerfect£233.83

By WordPerfect Corporation
☎ (UK) 0932 850500

All the above distributed in the UK by:

HB Marketing Ltd

Unit 3
Poyle 14
Newlands Drive
Colnbrook
Berks SL3 0DX
☎ 0753 686000

Pen Pal£79.95

By SoftWood, Inc.
☎ 010 1 602 431 9151

Distributed in the UK by:

Gordon Harwood Computers

New Street
Alfreton
Derbyshire DE5 7BP
☎ 0773 836781

Protext£152.75

(£110 until the end of October)

By Arnor Ltd

611 Lincoln Road
Peterborough
PE1 3HA
☎ 0733 68909

Wordworth£129.99

By Digita International Ltd

Black Horse House
Exmouth
EX8 1JL
☎ 0395 270273

Wordworth

a writer's dream

The graphical nature of Wordworth® makes producing documents faster and easier. The WYSIWYG display shows exactly how your printed document will look, different fonts, styles and sizes, headers and footers, graphics and so on.

Commands are grouped under a series of pull-down menus, accessible either by the mouse or keyboard. Frequently used commands have on-screen icons, including Help, should you need it.

Experience the look and feel of the new and exciting WB2 (even if you use WB1.3).

Digita's® innovative *Human Interface Protocol*™ is incorporated and sets new standards in speed, style and elegance. Each document is a separate multi-tasking window, which means you could for example, print one while editing another.

Graphics have always been the Amiga's strong point. Now it's better than ever. Pictures from Deluxe Paint can be placed in a document, and then sized, scaled and dragged (text automatically reformats around the image).

Wordworth's enhanced fonts will give you the very best printed quality. You can also print special symbols, such as boxes, arrows and so on. Better still, you can mix graphics, Wordworth's enhanced fonts, Amiga fonts, Colorfonts and your printer's own fonts, all on the same page.

Wordworth integrates with most word processors, and so you'll be able to use any documents created with Kindwords, Wordperfect, Prowrite, Protext, Excellence, and any ASCII or IFF Text document.

As Amiga Computing put it, "the only Amiga word processor to rival Protext for speed. I would recommend the program to anyone thinking of buying their first word processor or upgrading from Kindwords."



Wordworth is written in the UK by Digita. Which means you'll be using an English Collins spelling checker and thesaurus, and you'll know where to come for professional support.

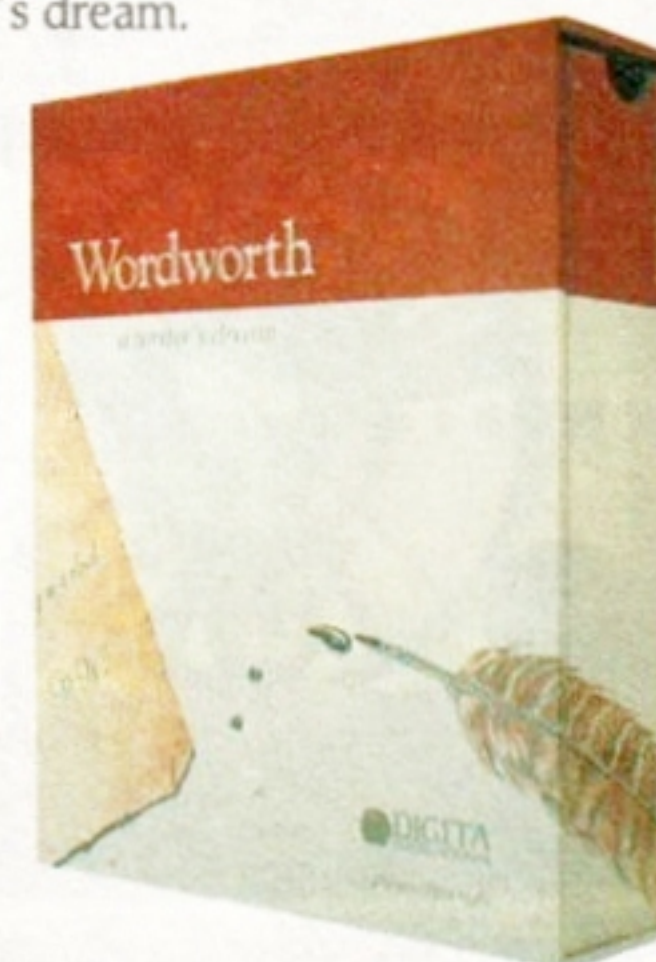
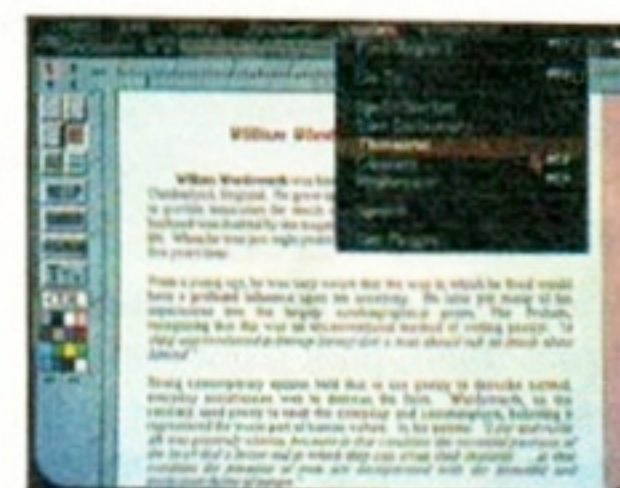
When Amiga Format said "a new word processor that will give the rest of the world a run for its money" they weren't joking. "Wordworth is the most user-friendly word publisher on the Amiga." Praise indeed.

The only way to really appreciate Wordworth is to use it. Phone 0395 270273 for more information or, write to Digita, FREEPOST, Exmouth EX8 2YZ.

Wordworth costs £129.99, which includes VAT, postage and packing. If you already own a word processor and purchase Wordworth direct from Digita, you can save £30 by returning your original disks with your order.

Wordworth will be your writer's dream. However, if you don't agree with us (and purchased directly from Digita), return it in original condition within 7 days and we will refund your money.

Machine support
Written specifically for the Amiga
Fully supports WBV 1.3 and V2.00
Supports all medium or high resolution modes (mono and colour)
Requires 1MB of memory



DIGITA®
INTERNATIONAL
software that's right™

Digita International Ltd Black Horse House Exmouth EX8 1JL ENGLAND Tel: 0395 270273 Fax: 0395 268893

— A member of the Digita group —
Digita, the Digita logo, Wordworth and the Wordworth logo are registered trademarks, and HIP, Human Interface Protocol and software that's right are trademarks of Digita Holdings Ltd.
All other trademarks and their owners are acknowledged. Sold subject to standard conditions of sale E & OE

Hot toast

The Video Toaster has been making headlines across the computing and video worlds for more than a year. It's an add-in board which gives an Amiga the power of a professional video editing system at a fraction of the price. And it offers unparalleled features for creating and editing "true colour" graphics with millions of colours. The only problem is that the system at present only works with the American NTSC television system, not our own PAL setup. However NewTek promises that there will be a UK version soon, so we shipped over an American system to see just what the Toaster was capable of.

SOFTWARE SLICES

For US\$1,595 you get the Toaster hardware itself, plus eight disks of software and a manual which is the size of your average *Yellow Pages*, only heavier and in a nicely stencilled plastic ring binder.

The software, quaintly referred to as 'slices', consists of all the necessary programs to drive the Toaster. There is the *Switcher* interface, which is the heart of the package, *Lightwave 3D* modelling and animation software, a character generator called *ToasterCG*,

Gary Whiteley and Phil South have been looking at NewTek's Video Toaster, a powerful video mixing and graphics editing system for the Amiga

ToasterPaint (NewTek's 24-bit paint package), *ChromaFX*, for colour processing and other chroma effects, lots of special fonts for *ToasterCG*, objects for *Lightwave 3D* and demo material in the shape of pictures, framestore images and several *ToasterCG* examples.

WELL CONNECTED

The Video Toaster hardware is certainly well connected, being an amalgam of three circuit boards which fit into the video slot of Amiga 1500/2000/2500s (but not 3000s!) and having at its heart four custom-built very large scale integration (VLSI) chips to carry out the Toaster's specialist functions. There are four video inputs and two video outputs – all in the form of standard BNC connectors.

Installation, though not difficult, isn't for the faint-hearted, as it

entails swinging the power supply of the computer out of the way in order to get the board into the video slot, after which it neatly fills all the space between the power unit and the case of the machine. And that's all there is to it!

All there is to fixing the Toaster hardware inside the Amiga, that is. But that's just the start. For those of you who thought that the Toaster would turn you into the world's greatest video producer instantly you're in for a bit of a shock. It also needs video gear – and a fair amount of it if you really want your productions to cook.

OK, you could use the Toaster as a stand-alone device for 3D modelling, 24-bit painting, frame-grabbing and so on, and simply output the results to video. But then you'd be wasting what looks like a very versatile and exciting tool – and most of those shiny BNC connectors on the back of the Video Toaster.

Granted, you don't have to use any of the video inputs at all, but imagine what you could put in there! Think in terms of a video camera or two, or a couple of video machines or a combination of each. Think of them all feeding in at once. And that's where *Switcher* comes in. It's a screen emulation of a fully-functional video mixing desk with up to seven inputs available, since in addition to the four video feeds there is also a framestore built in to the Video Toaster to provide two assignable frame buffers, and there's also a background channel – thus seven in all.

Then there are the two video outputs. These are for Preview and Program. For the uninitiated these output either the video source selected on the Preview bus of *Switcher* or the video output from the Program bus, which is the final, definitive output from the Video Toaster. So in order to be able to really see what you're doing on your video production you'll need at least one video monitor in addition to the

Amiga monitor. This is so that you can monitor both the Preview/*Switcher* and Program outputs. The Amiga monitor is necessary because the Toaster requires that the Amiga RGB signal is connected in order for it to properly encode video signals. The addition of a second video monitor will allow you to display a Preview signal separately and use the Amiga monitor for *Switcher*'s control panel.

But that's not all. The video inputs will need to be synchronous with each other – in other words, all the signals arriving at the Toaster have to be perfectly in step with each other. This is necessary for clean video effects to take place and necessitates the addition of further equipment – namely Time Base Correctors at the rate of one per VTR. And any video cameras will also need to be capable of being externally synched to the system if you plan on using more than one simultaneously.

In fact, the sky's the limit as far as equipment goes. You could run a very simple Toaster setup of a single camera input and just one video recorder for the output. Or you could run an elaborate, three camera, one video player, one recorder system. It all depends on your needs and/or your funds. But you could also do most of the work in an 'off line' environment – at home, for example – by producing the graphics, captions and animations that you require in advance. Then hire an edit suite, take your Amiga and Toaster setup along, hook up and off you go.

HOME AND AWAY

The NTSC version of the Video Toaster is full-spec, US broadcast quality so it could be used (in NTSC system countries) by network TV, cable channels and production and post-production houses. (Indeed, it already is – see the 'toaster news' panel on page 36.) It could also be used by artists and animators to produce high-quality work onto video tape. And, cost-wise, it wouldn't be surprising to see the Video Toaster become commonplace in educational institutions running TV courses, in corporate and independent production facilities and ultimately into hard-core video enthusiasts' workrooms. In fact, anyone who is seriously into video will already have some, if not most, of the necessary equipment to utilise an appropriately equipped Amiga and a Video Toaster in their productions.

And what of a PAL version for us here in the UK? Well, it's coming along, but its release date is as yet unscheduled. It could be as much as a year away, but do believe us when we tell you that it's going to be well worth the wait...



The Video Toaster comes in two models – a stand-alone job (left) for US\$3,995 or, if you already have an Amiga capable of accepting it, as an add-in board (above) for just US\$1,595.

Video slices

The *Switcher* interface software supplied with the Toaster is first and foremost a comprehensive emulation of the mechanics of a special effects generator (SEG) and digital effects generator. Whilst there are some notable omissions, such as joystick wipe positioning, picture scaling, chroma key and full control over border and background colours, there are enough Toaster digital effects alone to make even hardened video editors salivate like Pavlov's dogs. And NewTek is making amends right now – adding to and refining the Toaster to make it even more scrumptious.

For the non-technical amongst you, I'll explain what *Switcher* does by starting with some basic information on vision mixing.

MIX AND MATCH

Now, you remember those four video inputs? Well, if this were a solid, three-dimensional mechanical SEG bolted into an edit suite console you could press a button on one of the input selector rows (busses), press another button on the other bus to select the other video source, select the type of transition, background colour, border colour and size and so on, then use the T-bar to control the speed of the transition between one video source and the other. The result of all this will be that the video signals are mixed, wiped or otherwise effected by the SEG and the resultant combined signal emerges through the Program output to the storage medium of your choice – usually video tape.

With Video Toaster, all the mechanical aspects of the SEG are replaced by a graphical interface, and all selections which would have been made on the mechanical SEG are instead made by using mouse

button clicks or, if you prefer, keyboard selections.

So, at its simplest *Switcher* could be used for cutting, fading or wiping between the various inputs available to the Toaster.

Those were the basics. Now for something a little more advanced: Toaster Digital Effects (or TDEs). These are what, for me, really put the Toaster up there with the big boys of TV equipment. Until now the price tag for these kinds of effects units has been beyond the reach of many serious video users – unless they had a very friendly bank manager. Priced in the the multiple



Incredible effects are available at the touch of a button.

thousands of pounds range, digital effects for video have generally been luxuries, squeezing many a post-production budget dry. The Toaster is changing all that – permanently. Not necessarily for the established majors, but for corporate, industrial, cable, educational and other volume producers the Toaster is going to make a very big splash.

It's very difficult to describe some of the TDEs available – and there are currently 128 of them ready to go at the click of a mouse button. The *Switcher* screen has pictorial representations of each TDE available, and guess what? They're

referred to as croutons! Reveals, conceals, flips, tumbles, bounces, spins, blinds and other TDEs such as the very descriptively named, but totally indescribable on paper, 'Kicked Puppy'!

By using the TDEs from *Switcher* you get almost exactly the same results as you would with a full-blown, rather expensive digital effects generator – at a fraction of the price. Spin a picture around to reveal another, roll one up and leave another in its place, fly one in then fly it out again. And while there are no true 3D effects – which require much increased processing power – I think that there's plenty here to appeal to every user, although I'd like to see some more fancy wipes such as stars, diamonds, hearts and even the lowly circle.

Performing a TDE is very simple, and can be done manually or automatically. For a manually-controlled effect either use the left mouse button to drag the T-bar down, or move the mouse while holding down the right-hand button. Automatic TDEs are made either by hitting the space bar or clicking on the 'Auto' button. The timing of automatic TDEs can be set to slow, medium or fast, although I'd like to see NewTek incorporate some kind of absolute time setting, which would be very useful when you need an accurately timed and smooth transition between images.

When you plug live video signals into the VT, things really start looking good. TDEs which previously appeared fine with framestore images take on a whole new dimension. Trails, folds, fly-offs and all the other TDEs are suddenly working to full effect with real, moving video pictures!

Some of the TDEs are stunning. But words don't do them justice. If



"I've been looking at the video aspects of the Video Toaster, and trying to decide whether it really does perform as well as its reputation suggests."

Gary Whiteley

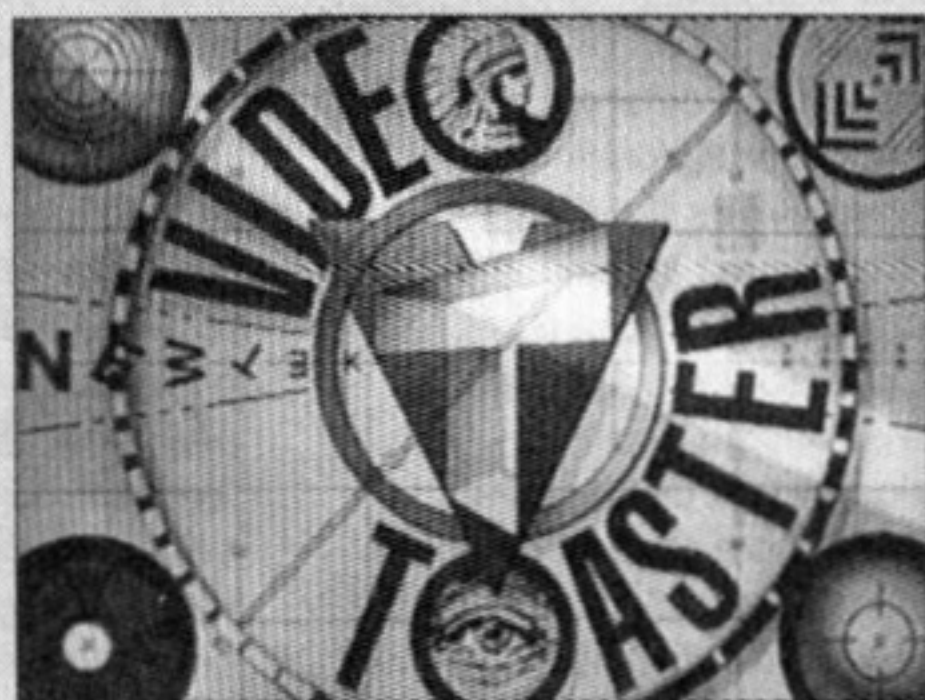
you can find one (and they're in short supply at the moment) take a look at NewTek's demo video. It's hard to believe that a so-called "games machine" can do all this.

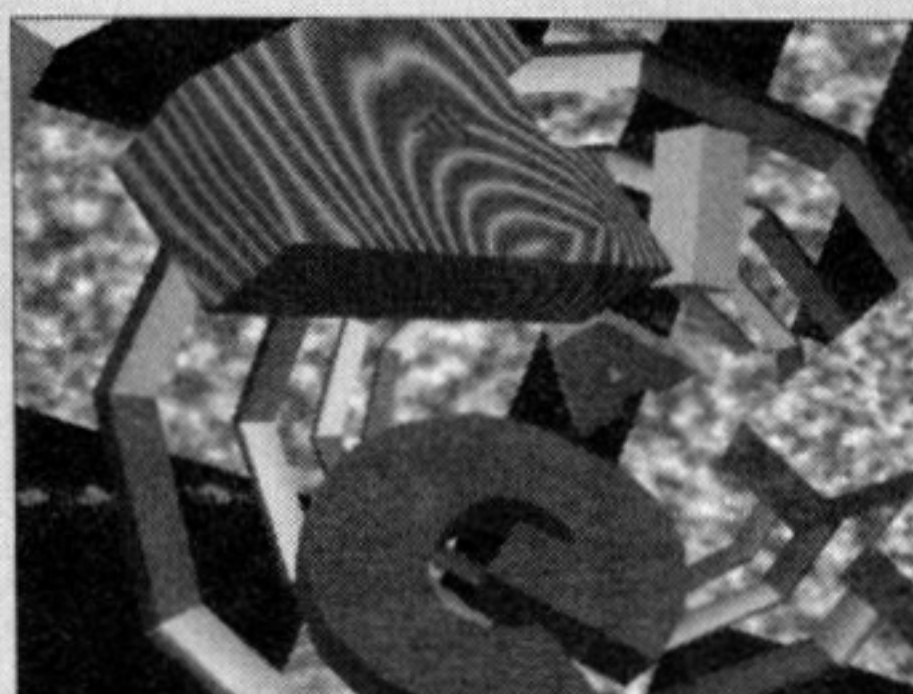
SOME DRAWBACKS

There are some small problems, unfortunately. If you look closely at certain TDEs in operation, especially ones where pictures are expanded or compressed, there is a digital breakup as the picture segment is altered in size. This is due to a lack of interpolation processing within the Toaster, resulting in an imperfect compression or expansion – for example, parts of the picture become increasingly 'chunky' or go missing altogether. This problem could be solved but would probably be expensive, requiring more hardware and programming to correct. However, don't despair. If you're viewing the video screen from a normal distance you'll hardly notice the joins.

continued on page 36

Using *Switcher* along with some of the other software it's easy to create effects like those shown on the right – just take a graphic, overlay a moving video image and combine the two in any way that you want to.





Multiple images are a piece of cake to create, and can be overlaid on to static or moving backgrounds. Note the logo which has also been placed in the picture. The grab on the right is just one of the 'explosion' effects.

continued from page 35

There is also a small problem with the timing of the mask around the TDEd picture when using video, resulting in a slight black edge on the left of the image and a cropping on the right. Again, look closely and you'll see it, but all equipment has its limitations and the Toaster is no exception. Sometimes cost and creativity are more important considerations than absolute quality.

There's also a bug in the software which saves frames to disk. If the mouse is moved during saving, the result will be that a series of broken, coloured lines will be saved on the picture. The current fix for this is to keep those twitchy fingers off the mouse while saving, turn it upside down and bolt down the cat.

One final gripe on the video side is that when you're using video and a framestore image simultaneously it just isn't possible to use TDE effects which require compression or expansion (which is most of them). They become reduced to wipes which

mimic the style of the original TDE. This is because half the framestore has to be used for four fields of video, whilst the other half contains the framestore image, leaving no room for the TDE manipulation.

While testing with video input we found that adding more memory definitely improves the smoothness of the TDEs. Initially we were using 4Mb of Fast RAM on our Fatter Agnus-equipped A2000, but increasing this to 8Mb gave far smoother transitions.

FRAME IT

With a live video source hooked up (a VTR or camera), the Toaster can grab a frame of video in 24-bit mode. This is simply done: just hit the 'Freeze' button in the *Switcher* to grab from the selected source. Then, if there is some jitter caused by movement, simply enter the Preferences screen, click on the jitter removal icon, and a few moments later the image is rock steady. Grabbed frames can be saved as framestore pictures and

imported to *ToasterPaint* for any kind of surgery you wish to perform. No doubt Doctor South has some interesting thoughts on this in his *Toaster* graphics section (page 42).

KEY IT

The Video Toaster also features luma keying facilities directly from *Switcher*, with full control over 256 brightness levels (from full black to peak white) and with either positive or negative settings, enabling one image to be keyed very crisply over another. Keying has many applications, such as superimposing titles over video by replacing the title background colour with the video picture, or for replacing a section of one picture with the another picture (this is known as a 'wipe key effect'). Linear keying is also possible, and will be mentioned in more detail in the next section.

TOAST WITH CHARACTER

Put another slice in the Video Toaster. *ToasterCG* is a fully-featured character generator which has anti-aliased fonts, scrolling, crawling, background generation and many other features.

Put simply, *ToasterCG* has a workspace made up of 100 pages, called a 'book'. Only one book is available at any one time, but others can be recalled from storage as necessary. Each book can contain 20 different fonts, and each page can have a different font on each line. Finally, there is the 'project', which contains the current set of TDEs and the status of all the slices (that is, whether they are loaded into memory or not) and, of course, the contents of the book.

There are five different page formats, each being used for specific tasks. Blank pages are simply that – blank. They cannot contain any information but can be used as dividers between other pages. Key pages are *ToasterCG* pages which key stationary text over graphics or video. Framestore pages are full-screen pages which can have a generated background as well as text and can be saved to either framestore. Crawl pages key text

which moves from right to left over video or graphics, in either the middle or the bottom of the screen, and scroll pages are similar to crawl pages, but roll the keyed text from the bottom of the screen to the top.

Scroll and crawl pages can be run at one of four preset speeds, and cannot have shadowing or use the special 24-bit Chroma Fonts provided with *ToasterCG*.

Over 30 high-quality fonts are provided, and it is possible to convert any Amiga bitmapped font for use with *ToasterCG* by using the supplied utility, *Toastfont*, which works very efficiently and produces high quality results. You could even use graphics as fonts, making symbols, logos, grand prix cars and so on all available for presentation as Chroma Fonts, although I could find no indication in the manual of how this can be accomplished. A subsequent call to NewTek confirmed that Chroma Fonts are currently rather difficult to create on a DIY basis, but software will soon be available from the company to redress this shortcoming.

All the functions of *ToasterCG* are accessed via the keyboard only – something I have found annoying in other character generators – even though there are on-screen icons available. So function keys become very important with *ToasterCG* and they often have several uses, since the <Alt> and <Shift> keys can also be used in their selection.

Text can be shadowed and bordered (in any colour of your choice) but can only be manually kerned. Face colour is easily changed, as are shadow type and direction and border size. Font selection is easy and adding new fonts to the current book from the available font list is a piece of cake. Sadly, however, there are no facilities built in for automatic underlining, emboldening or italicising: your font style must already be in bold or italic when selected, and underlining can only be simulated by using a graphic separation character – which is simply a horizontal line.

continued on page 41

TOASTER NEWS

The really hot bits of news about the Video Toaster at the time of going to press are, according to NewTek:

- The Video Toaster will be used in the production the new *Star Trek* movie, *Star Trek 6: The Lost Country*.
- In the next version the company will be improving the software to enable the Toaster to work at a resolution of 1,900 x 3,000 lines, enabling direct-to-film effects.
- CBS is using *Lightwave 3D* to design its new animated WCBS logo.
- The Playboy Channel uses the Video Toaster in all its productions.
- NewTek has sold more Toasters in the US than Grass Valley has sold video switchers, with over 20,000 Toasters sold so far.
- Upgrades will allow favourite effects to be put in Bank A, and two new TDE banks are on the way.
- New software upgrades currently in the pipeline include more effects banks, some (limited) 3D video effects, joystick positioning and assignable compression/expansion of images. More support for background channel will be included, along with improved versions of many of the slices. And there's talk of an additional board to support ChromaKey via component inputs.
- The next release includes particle generation for *Lightwave 3D*, to build clouds, snow, dust and other particulate objects. In fact, NewTek expects software upgrades to be available every 6-8 months.

Swift Microcomputers Ltd.

84 High Street North, Dunstable Bedfordshire, LU6 3HP. Tele: (0582) 476257/8

3.5 DS/DD

50	£21.75
100	£33.00
200	£62.00
500	£137.00

Including labels

5.25 DS/DD

50	£11.50
100	£22.00
200	£42.00
500	£95.00

Including sleeves

DISK BOXES

3.5 40 CAP	£4.10
3.5 80 CAP	£4.50
5.25 50 CAP	£5.00
5.25 100 CAP	£5.50

ATARI

520ST - E DISCOVERY PK

£299

FAMILY CURRICULUM PK

£365

520ST - E TURBO PK

£315

EXTERNAL DRIVE.....	£65.00
STACY ST	CALL
ATARI TT	CALL
MEGAFILE 30	£339.00
MEGAFILE 60	£469.00
SM124 M'TOR	£137.00
SC1224 M'TOR	£259.00
LYNX	£73.00
PORTFOLIO	£175.00

AMIGA DEALS!

A 500 Computer with
1Mb Ram & Second Drive

£365!

0.5 Meg Ram £19.99

(add £6 for clock)

External Drive £55.00

PHILIPS
CM8833 Mk2

£219

INC LEAD

COMMODORE
CDTV

CALL FOR
LATEST DEALS!

**SONY 3.5 DS/DD
BULK 37p**

COMMODORE

AMIGA 500	£305.00
CARTOON CLASSICS	£365.00
CLASS OF 90s	£510.00
FIRST STEPS	£510.00
A590 20MB H/DISK	£279.00
1.5 MEG RAM	£85.00
1084S MONITOR	£245.00
C64 P/INTELLIGENCE	£119.00
AMIGA 1500/2000	
AMIGA 2000	CALL
AMIGA 1500	£650.00
52MB H/CARD	£299.00
105MB H/CARD	£439.00

PRINTERS

STAR

LC 10	£155.00
LC24 - 10	£215.00
LC 200 COLOUR	£215.00
LC 24 - 200	£295.00

3 1/2 HD

50	£28.50
100	£55.00
200	£105.00

AMSTRAD

ALT 286	£1580.00
ALT 388	£2030.00
PC2086 HD/COL	£893.00
PC2086 SD/COL	£599.00

OTHER TYPES &
CONFIGS AVAILABLE

30MB H/CARD £159!

3.5 DS/DD & BOXES

25 disks + 40 cap box	£13.00
50 disks + 80 cap box	£24.00
100 disks + 80 cap box	£36.00
150 disks + 80 cap box	£51.00
200 disks + 2 X 80 cap boxes	£65.00
400 disks + 4x80 cap boxes	£138.00
500 disks + 5x80 cap boxes	£155.00

**NO QUIBBLE
LIFETIME GUARANTEE**

Call or send Cheques/Postal Orders to:

SWIFT MICROCOMPUTERS LTD

84 HIGH STREET NORTH, DUNSTABLE, BEDS. LU6 3HP

Telephone (0582) 476257/8 Fax (0582) 476258



PRICES INCLUDE VAT AND DELIVERY. ADD £9.00 FOR NEXT DAY DELIVERY

AMIGA PACKS AT THEIR VERY BEST TO ORDER YOURS JUST CALL MANDY, CAROL OR MELANIE

1. CARTOON CLASSICS PACK ★ A500 Computer Pack ★ 1Mb Memory ★ Super Joystick ★ De-Luxe Paint III ★ Lemmings ★ The Simpsons ★ Captain Planet Pack Price £369.95	2. ULTIMATE GAMES PACK ★ A500 Computer Pack ★ 10 Fantastic games ★ Disk Box ★ 10 Disks ★ Mouse Mat ★ Dust Cover ★ 512K Ram upgrade (fitted) ★ Super Joystick Pack Price £369.95	3. PUBLISHERS PACK ★ A500 Computer Pack ★ Kindwords 2.0 ★ Pagesetter 1.2 ★ Headline Font Pack ★ Tutorial ★ Artists Choice Art Pack ★ Disk Box ★ 10 Disks Pack Price £369.95
4. BEGINNERS PACK ★ A500 Computer Pack ★ Wicked 9 game pack ★ Quality Mousemat ★ Pack of 10 disks ★ Super Joystick Pack Price 310.95	5. HEROES PACK ★ A500 Computer Pack ★ Indiana Jones ★ Robocop ★ Batman The Movie ★ Ghostbusters II Pack Price £310.95	6. STANDARD PACK ★ A500 Computer Pack ★ TV Modulator ★ 1Mb Disk Drive ★ Mouse ★ Speech Synthesis ★ Manual & Work Disks ★ All Leads ★ Joystick Pack Price £299.95

For extra 512K memory on packs 4, 5, 6 (fitted) add only £24.95 (£28.95 with clock)

★ NEW ★ AMIGA ADDED VALUE OUTFIT PACKS *All packs come with the Amiga Value Pack of your choice (choose from above)*

<u>MONO PRINTER PACK</u>	<u>COLOUR PRINTER PACK</u>	<u>STEREO COLOUR MONITOR PACK</u>	<u>PROFESSIONAL PACK</u>
★ Amiga Value Pack (Your choice of 3) ★ LC10 Mono ★ All connecting cables	★ Amiga Value Pack (Your choice of 3) ★ LC200 ★ All connecting cables	★ Amiga Value Pack (Your choice of 3) ★ 1084S or Philips 8833II (Please state which) ★ All connecting cables	★ Amiga Value Pack (Your choice of 3) ★ 1084S or Philips 8833II (Please state which) ★ LC200 ★ All connecting cables

ONLY £439.99 ONLY £494.99 ONLY £539.99 ONLY £739.99

Free 16 day hotel accommodation vouchers with every pack.

COMMODORE HARD DRIVES

A590 1/2 Meg.....	£275
A590 + 1Mb.....	£309
A590 + 2Mb.....	£330

**1Mb and 2Mb
Upgrades fitted
FREE**

ESSENTIAL COMPUTER ACCESSORY PACK 1

- ★ Competition Pro 5000 joystick .RRP £14.95
- ★ High quality solid perspex computer dustcoverRRP £9.95
- ★ 20 3 1/2" DS/DD disks with labelsRRP £16.95
- ★ 40 capacity lockable disk boxRRP £4.95
- ★ 3 1/2" disk drive cleaner kitRRP £4.95

**TOTAL RRP £52.75
PACK PRICE £29.95**

ESSENTIAL COMPUTER ACCESSORY PACK 2

- ★ Naksha high quality powermouseRRP £34.95
- ★ High quality mousepadRRP £8.95
- ★ High quality solid perspex computer dust coverRRP £14.95
- ★ Twin joystick/mouse extension leads .RRP £9.95

**TOTAL RRP £68.80
PACK PRICE £29.95**

COMMODORE A501 SCOOP PURCHASE

- ★ Official 512K Ram upgrade for A500
- ★ Complete with battery backed clock
- ★ Enclosed in protective shielding
- ★ Only approved upgrade not invalidating warranty
- ★ Official Commodore 1 year guarantee

RRP £99.99 **SCOOP PRICE £39.99**
ORDER WHILST STOCKS LAST!

PACK 1 AMIGA PERIPHERAL PACKS PACK 2

Megaboard Ram Expansion.....	RRP £49.95	PC 880 3.5" disk drive	RRP £89.95
40 capacity lockable disk box	RRP £9.95	Megaboard Ram Expansion	RRP £49.95
20 3.5" DS/DD disks with labels ...	RRP £19.95	40 capacity lockable disk box.....	RRP £9.95
		20 3.5" DS/DD disks with labels	RRP £19.95
		3.5" disk drive cleaner kit.....	RRP £9.95

TOTAL RRP £79.85PACK PRICE £39.95 TOTAL RRP £179.75 ...PACK PRICE £99.95

DO

COMPUTERS

UNIT 3, FORGE CLOSE, LITTLE END ROAD, EATON SOCON, CAMBS

FROM THE POWER HOUSE

1.5Mb A500 Ram expansion card.....	£79.00
Blitz with PC880 drive	£65.00
Blitz Turbo	£19.95
A500 anti-click board.....	£15.00
Power mouse.....	£14.95
Slimline hard disk 40Mb.....	£299.00
Amiga 2000 internal drive kit	£46.95
A500 internal floppy drive	£46.95

AMIGA

1/2 MEG UPGRADE BOARD

- ★ Uses latest 4 chip design
- ★ Memory on/off switch
- ★ Option of battery backed clock
- ★ Full 12 month guarantee
- ★ New super low price

£24.95

Clock version £29.95

DISK DRIVE STARTER KIT

- ★ PC880 3.5" High Quality Disk Drive£89.99
(Features anti-click, on/off, superslim design)
- ★ Ten 3.5" DS/DD disks with labelsRRP £9.99
- ★ 40 Capacity lockable disk boxRRP £9.99
- ★ 3.5" Disk drive cleaner kit.....RRP £9.99

TOTAL RRP £119.96

Starter Kit Price £59.99

STAR PRINTERS

LC10 Mono
9 Pin Dot Matrix 144/34cps.....£149.95

LC200 Colour
9 Pin, 180/45 cps, 16K Buffer£199.95

LC24-200 Mono
24 Pin Dot Matrix, 200/67cps.....£239.95

LC24-200 Colour
24 Pin, 200/67 cps, 30K Buffer£289.95

PRINTER ACCESSORY PACK

Only available when purchased with a printer.

- ★ Parallel printer cable - RRP £14.95
- ★ 200 sheets listing paper - RRP £6.95
- ★ Quality tailored dust cover - RRP £12.95

TOTAL RRP £34.85

PRICES

SMASHED

	RRP	OUR PRICE
Music X V1.1	£149.95	£69.95
Music X Junior	£79.95	£39.95
Midi Interface (In-thru-out-out) with lead	£29.95	£17.99

PACK PRICE £9.95

with printer stand

£14.95

ESSENTIAL ACCESSORIES

Disks

Pack of 10 high quality 3.5" DS/DD.....	£4.99
Box of 10 branded TDK 3.5" DS/DD.....	£7.99
Box of 50 3.5" DS/DD with labels.....	£18.99
Box of 100 3.5" DS/DD with labels.....	£35.99
Box of 250 3.5" DS/DD with labels.....	£79.99
3.5" disk drive cleaning kit.....	£3.99

Disk Boxes

3.5" 10 capacity Ryford box	£1.49
3.5" 40 capacity lockable box.....	£4.50
3.5" 80 capacity lockable box.....	£5.95
3.5" 80 capacity Van 3 (slim design).....	£7.95

Mouse

High quality mousepad	£2.99
Mouse/joystick extension leads.....	£5.99

Dustcovers

PVC quality covers for computer/printer.....	£5.99
High quality solid Perspex dustcover	£9.99

MICROSWITCH JOYSTICKS

*The only joysticks worth buying,
full 1 year guarantee!*

QUICKJOY III SUPERCHARGER

Two fire buttons, Auto-fire,
Six micro-switches.....£8.99

QUICKSHOT TURBO

Two fire buttons, Auto-fire, six micro-switches...£9.99

QUICKJOY VI JETFIGHTER

Two fire buttons, Autofire with fast/slow mode,
6 m/s.....£12.99

COMPETITION PRO 5000

Two fire buttons, steel shaft, Autofire, m/s.....£12.99

ZIPSTICK AUTOFIRE

Two fire buttons, steel shaft, Autofire, m/s.....£13.99

STINGRAY AUTOFIRE

Direct replacement for Konix Navigator£14.99

QUICKJOY V SUPERBOARD

Six fire buttons, Autofire, stopwatch,
Ten m/s.....£16.99

QUICKJOY TOPSTAR - Highly recommended

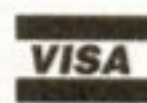
Two fire buttons, A/f slow motion, 6 m/s,
see through body.....£19.99

QUICKJOY MEGABOARD

Four fire buttons, 8 m/s, A/f slow motion,
stop watch, countdown.....£23.99



HOW TO ORDER



BY PHONE



Simply call our head office quoting your Access/Visa number on

Mon-Fri 0480 403222

Sat 0480 403304

By personally calling at
our St Neots or Hertford Shop



ST NEOTS

6 Priory Mall,
St Neots, Cambs
Tel: 0480
403304

HERTFORD

49 Railway St.
Warren Place
Hertford, Herts.
Tel: 0992 554469

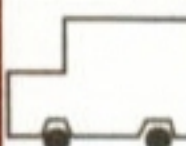


BY POST

Make cheques, building society drafts or postal orders payable to:

Dow Computers

Please allow time for cheque clearance



DELIVERY

(UK Mainland, most areas)

Please add £6 courier delivery for orders over £100, add £2 p&p for orders under.



GOLD CLUB SERVICE

- ★ 7 day money back guarantee if not completely satisfied
- ★ 30 day exchange for new policy should a fault occur
- ★ 1 year guarantee giving FREE collection and delivery service should a fault occur
- ★ Exclusive gold card with personal membership number entitling you to special offers
- ★ All this for a nominal £10 per item over £100

PLATINUM CARD SERVICE

- ★ All the benefits of the successful gold card service (above) plus the following

- Extended 2 year guarantee from date of purchase. (Peace of mind for 2 years)
- Free use of loan machine if required should yours need to be repaired. (Now you never need be without your expensive purchase)
- Free collection and delivery service for the full two years should a fault occur. (Just make one simple phone call and leave the rest to us!)
- Exclusive platinum privileged customer card entitling you to special offers.
- All of these benefits for the incredible price of just £39.95 per item purchased.

N.B. In the unlikely case of shortages of identical model loan machines a suitable alternative will be offered.

WHY CHOOSE DOW?

- ★ **ESTABLISHED OVER 5 YEARS**
With a growing reputation for "putting the customer first". We intend to satisfy many more customers for years to come
 - ★ **TECHNICAL SUPPORT/ON-SITE ENGINEERS**
Employing over 20 specialist staff, we are equipped to deal with the majority of queries
 - ★ **FULL TESTING PROCEDURE**
All computer hardware is tested prior to despatch, proving Dows commitment to customer care
- Prices correct at going to press but may change without notice. E&OE.*

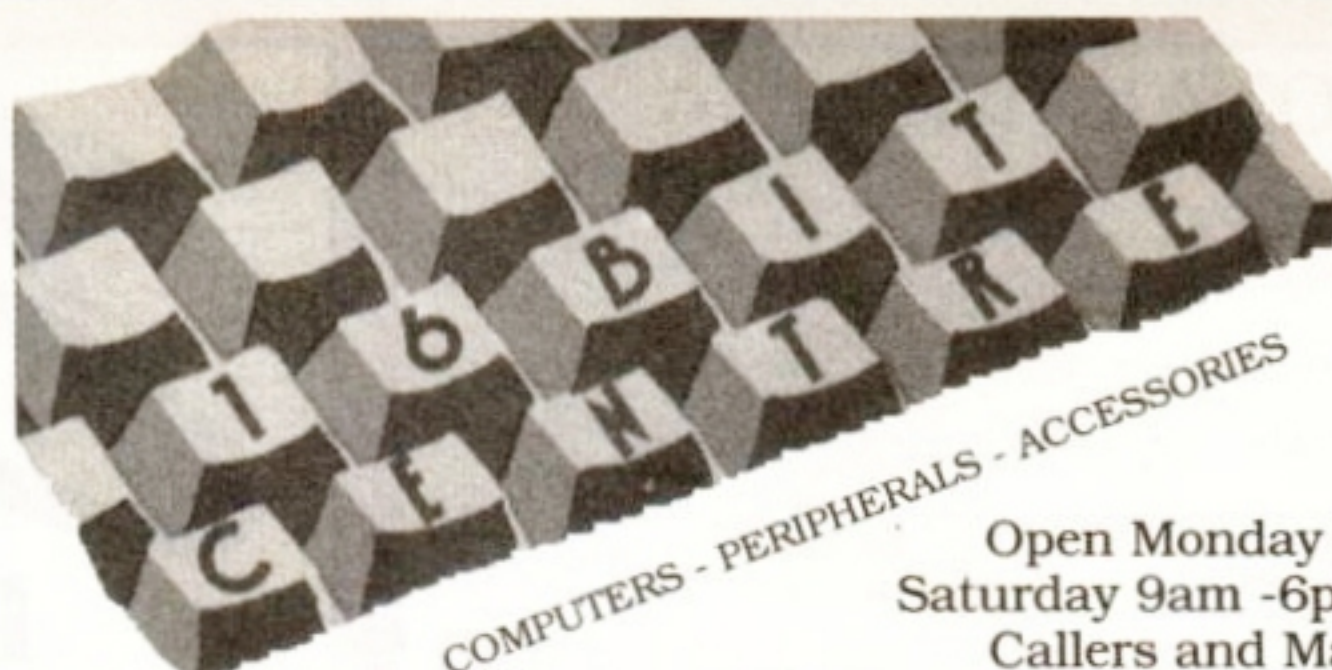
TELESALES ORDER LINE (MON-FRI) 0480 403222/(SAT) 0480 403304

COMMODORE 1084S STEREO MONITOR

Including FREE lead
ONLY £229.00

PHILIPS 8833 MK II STEREO MONITOR

Including Free Lead
ONLY £229.00



COMPUTERS - PERIPHERALS - ACCESSORIES

CDTV now in stock

Open Monday to
Saturday 9am -6pm
Callers and Mail
Order welcome

**BATTLE OF
BRITAIN
THEIR FINEST
HOUR
ONLY £20.00**

AT ONCE AMIGA

PC 286 AT EMULATOR
FOR THE A500

ONLY £169.00

AMIGA PACKS

SCREEN GEMS PACK, inc. Shadow / Beast II, Back/Future II, Nightbreed, Days of Thunder, Dpaint II	£359.00
AMIGA A500, mouse, modulator, power supply, Workbench 1.3, Basic Tutorial and manuals	£309.00
CARTOON CLASSICS inc: 1Mb Ram, Lemmings, Simpsons, Captain Planet, Deluxe Paint 3	£369.00
CLASS OF THE 90'S FIRST STEPS, inc. Extra 512K, Pr-Write, Info File, Dpaint + Dprint II etc	£515.00
CLASS OF THE 90'S, inc. Extra 512K, Publishers Choice, MaxiPlan, BBC Emulator, Midi Int. etc	£515.00
AMIGA CREATIVITY PACK, with Word Processor, Music & Paint packages, 3 games + Tutorial Video	£419.00

All Amiga A500's supplied with mouse, modulator, manuals, workbench, Basic + Tutorial

AMIGA A500 FUN PACK

Amiga A500, Mouse, Modulator, Manuals, Basic, Workbench, Tutorial, Joystick, Disk Box, 10 Blank Disks, Dust Cover, Dpaint III, PLUS 13 GREAT GAMES Lemmings, Simpsons, Captain Planet, Star Wars, Toobin, Barbarian II, Licence to Kill - James Bond Game, Running Man - With Schwarzenegger, APB, Xybots, Dragon Spirit, Hard Drivin, Voyager, 1 Meg of Ram

ONLY £399.00

AMIGA A500 MAX PACK

Amiga A500, Mouse, Modulator, Manuals, Basic, Workbench, Tutorial, Joystick, Disk Box, 10 Blank Disks, Dust Cover, Dpaint II, PLUS 10 GREAT GAMES Star Wars, Toobin, Barbarian II, Licence to Kill - James Bond Game, Running Man - With Schwarzenegger, APB, Xybots, Dragon Spirit, Hard Drivin, Voyager

ONLY £359.00 1 MEG VERSION £389.00

SOFTWARE AND DISKS

3D PROFESSIONAL	£209.00	PIXEL 3D	£49.00
AMOS + EXTRAS DISK	£32.00	PRO VIDEO POST	£159.00
BROADCAST TITLER II	£169.00	PRO-WRITE V3.1	£85.00
VIDEO EASE	£35.00	EXCELLENCE V2	£89.00
DIGIVIEW GOLD V4	£95.00	TITLE PAGE	£109.00
LATTICE C V5.1	£149.00	PROFESSIONAL PAGE V2	£169.00
PAGESETTER V2, DTP	£47.00	VIDEO EFFECTS 3D	£109.00
PAGESTREAM, New Version 2.1	£129.00	X-CAD DESIGNER (1 Meg)	£69.00
PAGESTREAM FONTS	£49.00	X-CAD PROFESSIONAL	£129.00
TV TEXT PROFESSIONAL	£79.00	WORDWORTH	£85.00
CROSS-DOS, Multi-format file transfer	£23.00		
HITACHI 720 VIDEO CAMERA. Ideal for DigiView	£199.00		
PEN PAL, Excellent Word Processor (1 Meg)	£59.00		
IMAGINE 3D Animation & Rendering software	£169.00		
ART DEPARTMENT PROFESSIONAL	£119.00		
ALL IN ONE, Art package, Word Pro + Music package	£119.00		
TV SHOW, Video wipes, titling package	£55.00		
PHOTON PAINT II, HAM Art + Animation	£25.00		
AMOS COMPILER	£23.00		
THE WORKS PLATINUM. Integrated package	£62.00		
AMIGA VISION. Authoring software	£89.00		
DOS 2 DOS Multi-format file transfer	£33.00		
WALT DISNEY ANIMATION STUDIO (1 Meg)	£69.00		
SPECTRA COLOUR	£55.00		
X-UTILITIES	£34.00		

HARDWARE

COMMODORE A590 20MB Hard Disk, Unpopulated	£285.00
COMMODORE A590 20mb Hard Disk + 2m RAM	£339.00
FRAME GRABBER PAL	£449.00
RENDALE 8802 Genlock, A500/B2000	£185.00
AUDIO ENGINEER Sampling hardware/software	£169.00
SOPHUS S5 Professional Stereo Sampler	£49.00
KCS POWERBOARD, PC Emulation (A500) with MS DOS	£215.00
AMIGA compatible external disk drive, switch plus thru port	£57.50
GVP 52MB SCSI hard drive & 8M RAM Board for A500	£499.00
GVP 52 MEG SCSI Drive plus 8 Meg Ramboard for 1500/2000	£419.00
GOLDEN IMAGE HAND SCANNER with software plus Photon Paint	£169.00
NAKSHA CLONE MOUSE	£19.95

PRINTERS

STAR LC-10 MONO PRINTER inc. Lead	£159.00
STAR LC-200 COLOUR PRINTER inc. Lead	£209.00
STAR LC-24/200 MONO PRINTER inc. Lead	£249.00
STAR LC-24/200 COLOUR PRINTER inc. Lead	£297.00
CITIZEN SWIFT 24 MONO inc. Lead	£279.00
CITIZEN SWIFT 24 COLOUR inc. Lead	£275.00
CITIZEN 124D 24 Pin Mono inc. Lead	£195.00
CITIZEN 120D Plus, 9 Pin Mono inc. Lead	£139.00
CITIZEN SWIFT 9 COLOUR inc. Lead	£179.00
CANON BJ10E bubble jet inc. Lead	£269.00

AMIGA A1500

The A1500 inc. Philips 8833 or CBM 1084S monitor, Twin Drive, Dpaint3, The Works Plat., +4 Games, **ONLY £859.00**

AMIGA A500 part exchange available - please phone

AMIGA MEMORY

SUPRA RX500 8M Board for A500 inc 1M	£125.00
SUPRA RX500 8M Board for A500 inc 2M	£159.00
B2000 Microbotics 8M Ram Board + 2 Meg RAM	£159.00
Extra 2 Meg Ram for above board	£75.00
A500 TARGET 512K Ram, With Clock + Switch	£29.00

SUPRA/BAUD BANDIT 2400 MODEM

Hayes Compat. Auto-dial/answer, V21, 22, 22bis £124.00 Supra 2400 Plus, MNP5 + V42 Bis (speeds up to 9600) £189.00
As above but includes MNP5 error correction £159.00. New Supra 9600 Modem (speeds up to 38000) £399.00

HOW TO ORDER:
Either call our number
below with your credit
card details, or send a
cheque/PO or credit
card number and
expiry date to our
address. Make cheques
payable to
THE 16 BIT CENTRE
Prices subject to change without
notification.

All prices include VAT + Courier Service

16 BIT CENTRE

Units 15-17,
Lancashire Fittings Science Village
Claro Road, Harrogate HG1 4AF

Tel (0423) 531822/526322

**EXTENDED WARRANTY
AND MAINTENANCE
CONTRACTS AVAILABLE
ON ALL ITEMS. PLEASE
CALL FOR FURTHER
DETAILS**



CHECKOUT SWITCHER

Features

Plenty of options already, but there's still room for more!

Ease of use

Anyone should be able to use *Switcher* within a very short time. Simple and straightforward.

Speed

Access to all slices and croutons is fast – only loading of CG pages and framestore images may take a little while.

Quality

Readability is high, and everything is easy to understand.

Documentation

Not as comprehensive in details of actual usage as I would have liked. Some things have just got to be worked out by yourself.

Overall rating

continued from page 36

When you've made your pages, all you have to do is render them up (in 24-bit) and you're ready to go. Rendering framestore pages can take a little while, but they can then be saved to disk. Scroll and crawl pages will be available for use almost immediately and key pages do not take long at all. Pressing <F10> then lets us see our page on the Program or Preview output so we can decide if all is well before returning to *Switcher*.

Back in *Switcher* it's a simple task to trigger our prepared pages. Select the chosen page by scrolling through the listing window. Press <Enter> and it will be prepared for action – and will indicate this by causing one of the *Switcher* buttons to flash on and off. Then, when you trigger a transition (by using <Space>, the 'Auto' button or via the right-hand mouse button), the *ToasterCG* page will be faded, scrolled, crawled or TDEd – depending on the type of page you recalled – over video or framestore graphics.

The quality is as you would expect – crisp, clean and smooth. And by using linear keying (which is actually a type of luminance keying) any shadows applied to the text can be made to appear semi-transparent over the background video image. A nice touch, and a useful one at that.

I did find that I missed being able to play a sequence of pages back one after another, as is possible with other character generators, and this may cause problems when subtitling. Other features I would like to see include being able to mix fonts and colours

on the same line (especially in the scroll and crawl pages), the addition of simple graphics for text boxing and underlining, and more flexibility and variability with the speed of scrolls and crawls.

COLOUR PROCESSING

The third slice directly related to video output is called *ChromaFX*. Its purpose is to cause colour processing effects on incoming video signals – posterising, filtering, solarising and so on. There are about 30 ready-made effects, and these can be adjusted directly from the *ChromaFX* screen. So, when a video signal is effected with *ChromaFX* it will be 'painted over' with the selected effect. Again, these effects are hard to describe, but filtering, for example, would be like having a graduated filter applied over the video signal, allowing, say, the sky to be tinted red without effecting the rest of the picture. Or the whole picture could be washed over with rainbow colours, snow storms, weird colour effects, NewTek's Nuke effect (a false colour, posterised kind of affair) and so on. The *ChromaFX* arsenal can be extended by saving custom changes to disk. Just imagine how you might improve some of those holiday films!

IT'S ALSO A GENLOCK!

As a final touch, the Video Toaster can be made to operate as a lowly genlock. By exiting via the Toaster Preferences screen you will be returned to Workbench and the Amiga signal will be genlocked by the Toaster. I was surprised to be able to load *Deluxe Paint III* and run an animation over the top of a 24-bit

graphic. The quality looked very acceptable, too – a small amount of colour smearing but even the notoriously difficult reds were pretty viewable.

WHAT YOU NEED

A minimum system configuration for the Toaster suggests itself from what we found out using the system, and the following is sensible according to those tests:

- An Amiga 2000
 - 8Mb of Fast memory (9Mb total)
 - At least a 40Mb hard disk
 - A 68030 card of some kind
- If that wasn't enough, you will also need some video equipment: again, we think that a sensible set-up would comprise:
- A video camera
 - Two good-quality VTRs (for playback)
 - Two time base correctors to square up the signals from the VTRs
 - A recording VTR (with single frame capability)
 - Two video monitors in addition to the one attached to your Amiga

GOBSMACKED

I was. Totally. To round up the video side of things I must say that I think we'll have to wait a good while before another Amiga product will touch the Video Toaster for features, quality and innovation... at any price! OK, it's taken since 1987 to get this far, and it's only been available in the States since October last year. So you don't mind waiting that little bit longer for the PAL version, do you? You do? So how's about it, NewTek? Please? Pretty please?

continued on page 42

CHECKOUT TOASTERCG

Features

I would like to see more flexibility in text entry, styles and placement. Also more types of movement – teletext, for example.

Ease of use

Beyond the keyboard-only restrictions, CG is pretty easy to use.

Speed

Rendering times can be quite slow (on 68000 machines) and more variety is needed in scroll and crawl speeds.

Quality

Output quality is high, with even converted bitmap fonts looking very good. ChromaFonts are great, too.

Documentation

Fair, with easy-to-follow tutorials.

Overall rating

CHECKOUT CHROMAFX

Features

Customisable and storable effects, in addition to 30 pre-made ones. Plenty of control over the results.

Ease of use

Fairly straightforward, but needs some experimentation for true familiarity.

Speed

Can take a little time before an effect is ready to be used.

Quality

The preset effects look good, and so should the ones you build.

Documentation

Fair, with easy-to-follow tutorials.

Overall rating

THOSE TECH SPECS IN FULL

Note: just in case you missed the point, this review and spec applies only to the US TV standard NTSC model, but it's fairly safe to assume that most items (other than the NTSC specifications) will be retained on the PAL version when it finally becomes available.

- **Inputs:** 4 composite synchronous BNC with software controlled 75 ohm termination.
- **Outputs:** One Preview and one Program composite BNC.
- **Reference Video:** Composite colour or black burst on video input No. 1.
- **Trigger:** GPI trigger to joystick port.
- **Sync Generator:** Internally regenerated sync, black burst and blanking to full NTSC signal specifications.
- **Signal to Noise:** >55 dB.
- **Sampling Rate:** 14.31818MHz.
- **Memory:** 8 fields (expandable).

- **Frame Store:** Dual outputs independently routed to *Switcher*, storing 1, 2, 4 or 8 fields.

Capacity: Up to 1,000 frames (per frame store device, depending upon available storage).

Load Time: From RAM: <0.2 seconds.
From hard disk: <3 seconds.

- **Switcher:** 7 inputs: External video 1 – 4, Digital Channel 1, Digital Channel 2, Matte Generator. Independently selectable Preview output. Linear Keyer: 16 steps at 70ns resolution. 256 steps at 280ns resolution. Luminance Keyer: Dual keyer for dual threshold keying or two independent keys. Dual clip level control with 256 steps. Key input switchable to any input or digital channel.

Graphics slices



"I've been looking at the ToasterPaint and Lightwave slices of the Video Toaster; just how good are they?"

Phil South

The most incredible thing about the Toaster is that so few people have heard of it in the UK. Obviously a big spread in the UK's favourite Amiga magazine can't hurt that situation, but it's surprising that the big story about how the Toaster is making a mockery of highly priced video/graphics machines in the US is taking so long to spread over here.

The ramifications of what the Toaster could do to the state of the art in video are wide ranging and could spell the end of edit suit domination of the creative video market. For a long time mainframes and incredibly expensive graphics

workstations have had a monopoly on quality computer graphics, but this is all set to change. With the onset of 24-bit graphics cards (including the Toaster) this power is being given to the public at large. Now, with the Toaster, the video effects and paint facilities normally offered by the likes of Quantel's paintbox and Silicon graphics are at last in the hands of art scoundrels like us!

LET THERE BE LIGHTWAVE

Lightwave is the Toaster's 3D rendering package, written by *Videoscape 3D* author Alan Hastings. Like all the slices, you get to *Lightwave* through *Switcher*, clicking once to load it, and once again to actually use it. Once you've clicked on the *Lightwave 3D* crouton the first time, each time you run it again it will run instantly as it is held in memory.

To run *Lightwave* you need at least 5Mb of memory – and this is all needed if you intend to render anything of any size or complexity. 3D can be very time consuming at the best of times, and very processor-intensive to say the least, so an accelerator is needed if you want to cut down those rendering times, especially if you want to make frames for animation: at three hours per frame you stand to spend a lot of time with your Amiga locked up.

And talking about animation, you can't animate objects in real time either. Like most professional 3D systems, you have to find a means of rendering to videotape one frame at a time. This process is automated, and uses a simple protocol understood by single frame video rendering systems like Lyon Lamb. *Lightwave* can drive many different single frame recording devices, and has an ASCII command line for other, as yet unsupported devices, so commands can be typed straight in for transmission through the serial port. In this way it's probable that the Artbeat Simpatica system will soon feature Toaster compatibility, but obviously this won't be available until the unit is over here in PAL format and in quantity.

TRAVELLING LIGHT

There is so much in *Lightwave* that it's hard to know where to begin. First off there's a really mind-boggling array of transformations you can do, as the Todd Rundgren video for *Change Myself* shows (see the 'Todd is God' box on page 43). Most of the shape and form changing is done with envelope shapers, like a synthesizer, and these take all the hard work out of moulding your shapes into something else, or moving their textures about.

Gary reckons *Lightwave* is a bit odd to use, but I like it fine. Gary and

I always approach 3D from a different angle, though. (You might say as it's 3D, we can approach it from any angle we like, but that's just being silly.) Gary is used to systems which deliver high quality but need a bit of work to get them running, as he has learned every tricky-to-operate 3D system going. So his favourite rendering packages are things like *Imagine* or *Turbo Silver*. I came into 3D quite late on, so I prefer simple things like *Real 3D* and *Lightwave*.

One of the things I really like about *Lightwave* is that everything

happens on one screen most of the time, none of this tri-view business where everything from every angle is squeezed on to one screen. Of course there is that option if you like, but I don't like.

Animations are made using the same procedures, using 'tweening' to get objects in motion, rather than letting you move the object and

THE CREDITS

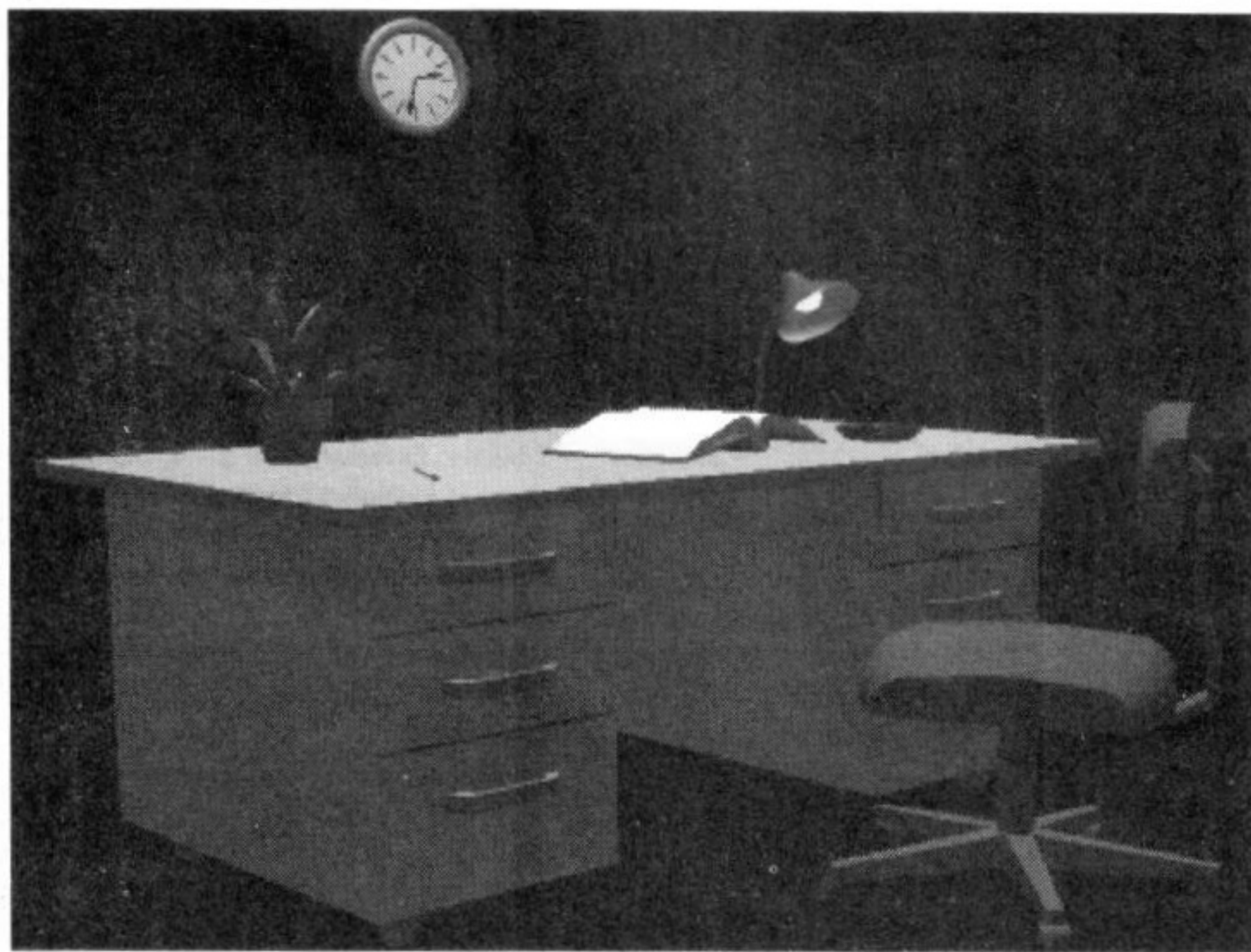
Thanks are due to Ira Curtis Coleman of Bitsoft, Watford for technical troubleshooting and being kind enough to set up all his NTSC equipment for us to zap video signals through the Video Toaster. To Stan Hearle of Artbeat (them again!) for supplying much-needed extra memory so that we could get the Video Toaster running in the first place. To 33 Video, Luton for loaning a video monitor capable of showing NTSC. And finally to NewTek, without whom none of this review would have been possible anyway!

position each frame carefully before rendering. Each frame is rendered up as a wire frame, then you can test the animation in this form before committing to a full render. Once you have an object moving you can animate it to video frame by frame, and then certain animated effects become apparent, such as moving textures and bumps.

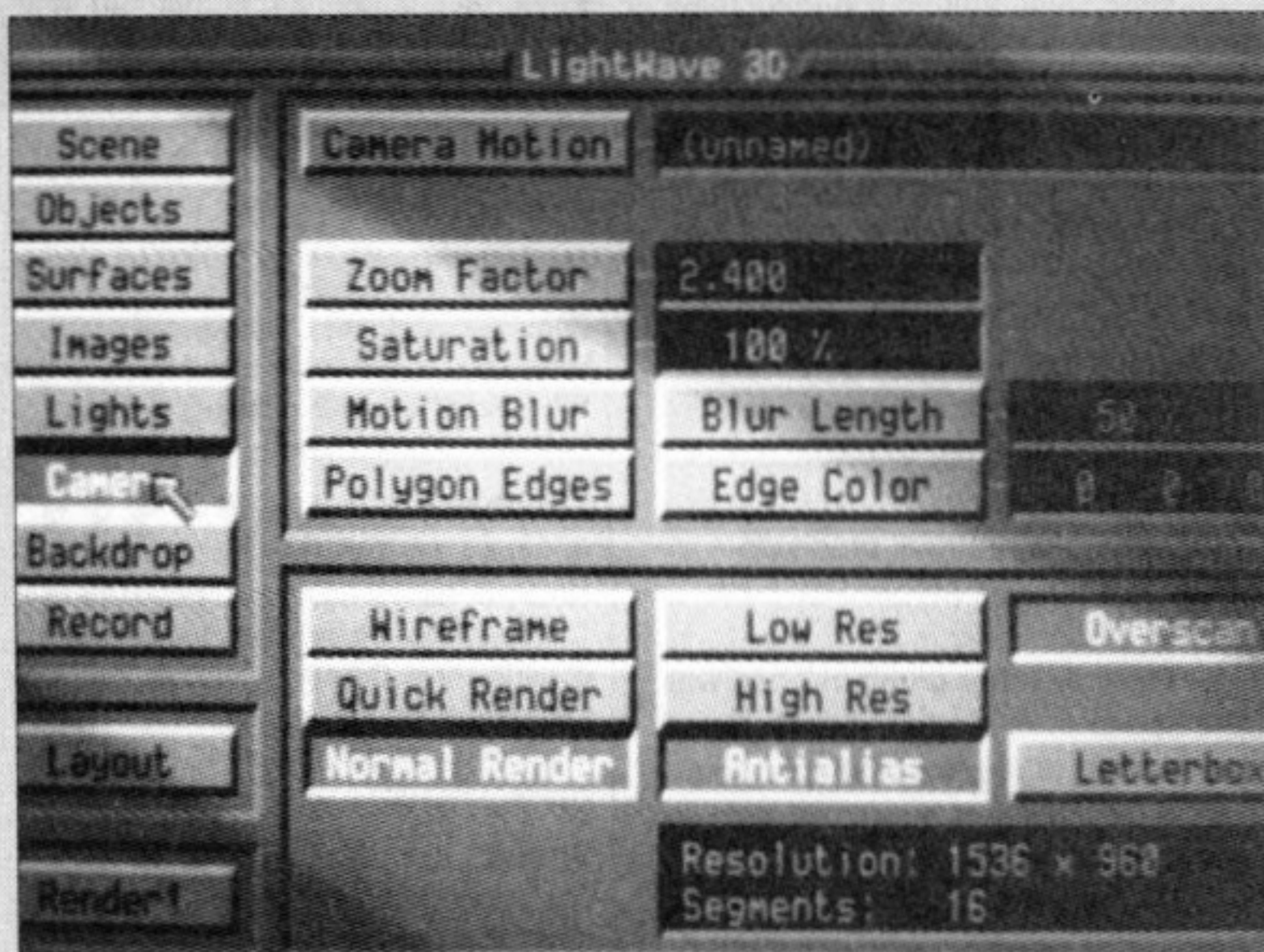
Objects are rounded using a full 'Phong normal interpolation', meaning that they look smooth even if they are made of 48 jaggy polygons. But if you want objects to look bumpy and they're not, you can do so with bump mapping. Bump maps can be made to simulate most surfaces, and just like *Real 3D* you create the bumpmaps of your own in *DPaint* or some similar package and then ship them over as brushes.

Ripples are another very exciting and beautiful effect, and these can be used to simulate water or even the ripples or waves in a flag. You can set up sources for the waves and set them in motion, and also dictate how tall the waves should be and how fast they move. The result is very attractive, and means you can do some very realistic liquid effects.

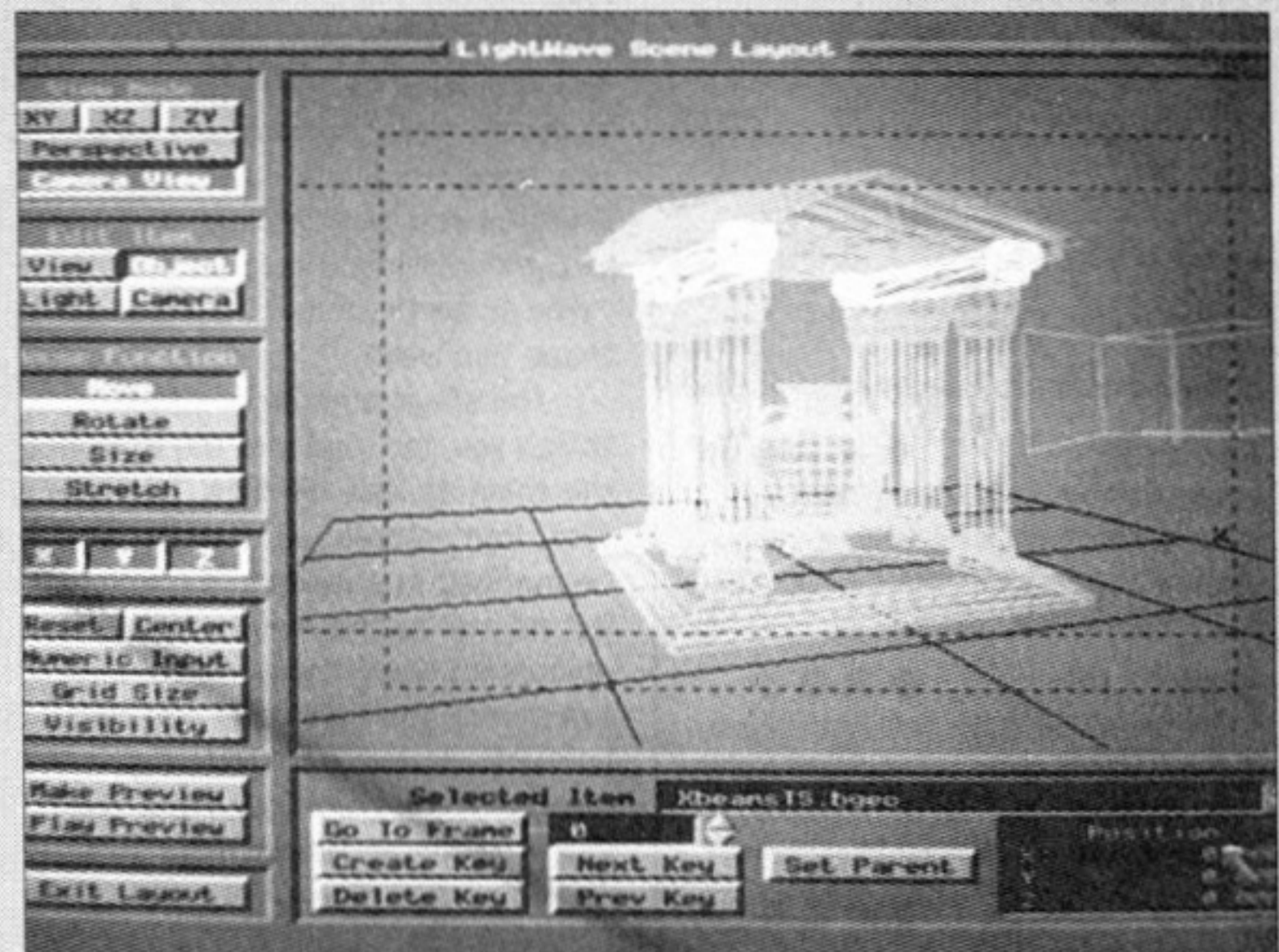
Lighting is a dream, with all manner of realistic lighting effects,



Lightwave is a very impressive 3D rendering package which creates effects like this.



Lightwave's main screen contains all of its available function – all can be accessed at the click of a mouse button.



Editing objects, lighting and so on is simple to do. The program makes every user action as intuitive as possible.

which all react as if you had a bunch of lights in a studio and were moving them around, altering the barn doors and filling in the shadows. Lights can also move around, and their motion is governed by the same simple tweening effects.

DOWN AT THE DOCS

The tutorials in the manual are many in number and take you through loading objects, changing colours, setting up scenes, simple animation, and editing animation. This covers most of the first batch of "how do I do this?" sort of questions which the user is likely to have, but what I wanted to read was a quick guide on how to simulate certain surfaces. Obviously the information is in the manual, but you have to delve around for it a bit. Then there it was, at the back of the Advanced Tutorial section. Why weren't they in with the

rest of them? Ah well. Some of the tutorials require that you render to a single frame VTR so you can see the effect, although one advanced demo takes over 30 hours to render on an un-accelerated Amiga!

The rest of the information is presented in a menu-by-menu style, with bald descriptions of what is what and ways in which you might like to use them. However, a lot of the pictures illustrating points in the book were missing, which meant that we had to guess at what the effects looked like, or render them up ourselves.

Those little niggles aside, though, the manual does talk about everything – albeit in what seems like minimal detail. You read a passage, try it, and think it can't possibly be as simple as that. And before you know it, it **is** as simple as that, because you have the result on

the screen. I think that on balance I would have preferred a colour manual, so I could see properly what sort of effects the options I was selecting would have.

The manual problems are actually being solved by NewTek, and

"Gary and I spent most of our time just saying 'Wow, look at that!'"

no doubt there are other tutorials in the making. In the US there are a lot of *Lightwave* video tutorials and stuff like that, so expect some of these to be converted when the Toaster pops up on these shores.

A COUPLE OF NIGGLES

Some silly things become apparent after a bit of tinkering. Like the fact that lights all have to be deleted together if you want to get rid of just one, although I figured out that you could just turn off any unwanted lights like you would in a real studio. Gary mentioned that it would be nice to have a 'zone' feature (like in *Turbo Silver*, for example) so that chosen areas can be checked rather than rendering the whole image.

Rendering times are acceptable, and this is mainly because it's not a ray-tracer as such, although you'd never know it to look at the results. A 68030/040 card would be of some considerable benefit to shorten rendering times, or you'd need a few Toasters running at once. Reflection

mapping makes up for the lack of traced light rays, but this is a rather strange effect in most cases, especially as the mapping only seems to reflect sky and ground, not any objects. You can, of course, make a picture of the surrounding objects and map it to the object you want to reflect them on but that's too complex for most purposes. Shadow and fog options certainly slowed rendering down, which is shame as these, along with edge opacity, are things which make a render look more real, lending depth of focus to otherwise clinically sharp images.

One thing which really did get under my skin was the lack of a loop in animation previews. You have to keep pressing the button, and the animation goes through once and stops. This is an obvious omission that I hope will be corrected in future revisions of the program – it is

TODD IS GOD

The *Change Myself* video is the first music video ever to be created with the Toaster. Todd Rundgren is well known for being a techno hippy, and an all-rounder in the music, graphics and general good-egg stakes. He was so impressed by the Toaster at a Mac show (what on earth was it doing there?) that he bought 10 of them and commenced making this stunning video. I had NewTek send me a copy of its demo reel, which features *Change Myself* as part of the fun, and I had Ira convert it from NTSC to PAL so we could watch it. It's simply electrifying. The video took a whole six months to render and edit, and all the objects are created and made by Todd himself.

Some of the most exciting effects are done by mapping his face on to objects, but more than that, the face is moving and the lips are synched to the words on the record. A video must have been shot, and each frame from the vid painstakingly transferred via the framestore on the Toaster, to be mapped on to the object on each frame of the animation. No wonder it took six months, even with ten Toasters!

NTSC ONLY

We have to emphasise that the version of the Toaster we have been reviewing here is the NTSC standard version, designed for use with the US TV system, and will not work in any way on the PAL-format equipment you have at home.

certainly a problem that needs addressing.

Finally, the Toaster also takes over the machine, making multi-tasking a little difficult – impossible, in fact, although in order to multi-task a Toaster and another application you'd have to be packing about 10-15Mb anyway, I guess.

continued on page 44

continued from page 43

THUMBS UP

Despite all the grumbling about bits and bobs, most things about *Lightwave* are utterly brilliant, like the way that you can make the camera

CHECKOUT LIGHTWAVE

Features

A fully featured 3D rendering package, which although not a ray tracer certainly delivers photo-realism with the minimum amount of effort.

Ease Of Use

A fast and intuitive interface, with a host of easy-to-apply effects. Creating a bump map, mapping it to a sphere and fast rendering took only around 15 minutes.

Speed

Comparable with state of the art ray tracers, which is no bad thing. Quick renders took 3-5 minutes, full renders 2-3 hours.

Quality

The quality of the images was awesome, and they are very easy to edit. Mapping of bumps, textures, and even frame stores was easy and stunning to look at.

Documentation

Lacking the illustrations we were looking for. Some example files mentioned in the book were not on the disks, making trying some examples impossible.

Overall rating

or lights track an object, and the fact that the camera looks like a camera when you catch sight of it on a view, and the lights all have little barn doors on them, so you can see which way they're pointing. A lot of the features and facilities implemented in *Lightwave* made me ask myself, "Why on earth aren't all programs made this way?"

The sheer amount of different things you can load into the thing got me going as well. IFF files, 24-bit IFF files, framestores, all of which can be mapped to shapes in the editor. But as well as the regular *Lightwave* objects (of which there are copious examples), you can load I objects and *Videoscape 3D* objects too. Obviously, the same guy wrote the *Videoscape 3D* program, so this makes perfect sense.

TOASTERPAINT

ToasterPaint is pretty much *DigiPaint* with a 24-bit rendering capability added. The screen is a four-by-four HAM super bitmap, and you scroll around the screen doing all the usual *DigiPaint* things to your picture. You can load a frame store or a *Lightwave* still frame for editing, or you can create a new graphic of your very own using the extensive tools available. Whether you like *ToasterPaint* or not depends on whether you liked *DigiPaint*. I did, Gary didn't, but we'll have to agree to disagree on that one.

Why *DigiPaint*? Well, aside from the fact that it's a ready-made interface and one of NewTek's own programs anyway, it is in fact a 24-bit program to start with. That's right, but it uses the 24-bit stuff to give it that smooth dithered look we all know and love. So it's a simple move to open the thing up and make it render to a framestore rather than the screen.

You need a minimum 5Mb of RAM to use *ToasterPaint*, and although this is fine for most things, you still have to remove the *ToasterCG* slice if you want to run it at all, as memory is at a premium with 5Mb. 9Mb is really the most practical amount, as this allows you to do all the swap page effects and rub thru - an effect where you draw on one page and the other page peeks through the gap, rather as if you were cutting through the top picture. Users with more memory will be able to cut out larger brushes from *Toaster 24-bit* images and paste them around the place with impunity.

Brushes can be warped and tiled, just like in *DigiPaint*, and all the nice sexy transparency and colourising effects work just like in the original program. The difference is that in the new incarnation the pictures are rendered to a 24-bit

buffer, so the effects are much smoother and contain more colours than are possible to imitate in HAM.

PROBLEMS?

I did wonder whether the fact that circles came out as egg shapes was down to the amount of diddling around with NTSC to PAL, or whether this was really happening. It's hard to be sure when there's so much converting going on. In any event, it's hard to judge the quality of the program's geometrical precision without it being a proper PAL piece of equipment.

The only other problem I had was the speed of re-rendering each time you loaded or resized a shape. This would be halved or quartered with an accelerator board, of course.

The manual suffers here too, but the lack of proper illustration was more than compensated for by the wealth of tutorials. Good luck with the new manual, guys!

SUMMING UP

Wow. That was my initial reaction, and it still holds true. Gary and I spent most of our time with the *Toaster* just flipping screens about and saying "Wow, look at that one!" The Wow Factor takes a long time to die down, and I'm not sure that I'm over it even now that I've run a scope over it and know its limitations. I'm still a *Toaster* fan, and from the very first moment I saw it running, I knew that this was the video production gear for me. I don't really care that it's not up to scratch from a PAL point of view (a tad nitpicky in my view), or that there are better quality boxes out there. The *Toaster* is an all-in-one box that I can afford, and all those other boxes aren't. I also don't care that you need a lot of ancillary equipment to make it all go properly - I can live with that if my bank manager can. What I do care about is that the *Toaster* is a hot item, and does some extremely sexy stuff for a cheap initial outlay.

NewTek says the PAL version will be out "some time in the next 12 months", although the company always says that, even if you ask every six weeks.

I can wait. No, really I can. It's not going to be easy, but I can wait.

Remember (once again) that the version of the Video Toaster we reviewed was an NTSC version, intended for the America market, and won't work on PAL equipment.

If you want more information on the availability of a PAL version, you can ring NewTek in the States on 010 1 913 354 1146. Also, keep reading Amiga Shopper - we'll let you know as soon as a UK version of the Toaster is shipping.

CHECKOUT VIDEO TOASTER

Documentation

NewTek is currently making efforts to improve the bulky (and unwieldy) manual, which has a number of glaring omissions (mostly illustrations) and obvious weaknesses. Not the least of these is that the manual is so full of pages you can't turn them without tearing them.

Flexibility

Obviously, the *Toaster* is very flexible simply by having so many different facets. The upgrades are mostly in the software department in the short term, as the basic hardware to do the job is already inside the *Toaster*. More effects will mean greater flexibility.

Speed

Very dependent upon added hardware (fast CPUs, RAM and HDs) and what you're actually doing. *Lightwave* can be rather slow, but so can other 3D packages. Otherwise, with forethought the *Toaster* should be fast enough for most situations. In fact, as we tested most of the slices in an unaccelerated Amiga the speed is really quite good considering what the machine was shifting around.

Ease Of Use

All access is from one screen, no extra disks to load, and most functions are fairly simple once you understand them. *Switcher* allows you access to all the other programs, and provided you have enough memory you can have everything at your fingertips at all times, which is the most integrated system we've ever seen.

Quality

Some improvements could still be made in all areas of the *Toaster*, especially in the areas of sync and removing some of the annoying blanking mis-timings we experienced. But unless your average viewer whips out a scope and tests the signal, it looks good enough for most purposes as it's always in motion. Improvements in the quality will come with future upgrades already in the pipeline. Then the *Toaster* really will knock 'em dead, even in the more fussy professional PAL market.

Features

More features could still be squeezed in or improved, but as it stands there are already enough for most people. More will be added soon, but for the time being the *Toaster* is still feature-heavy enough for the most creative user.

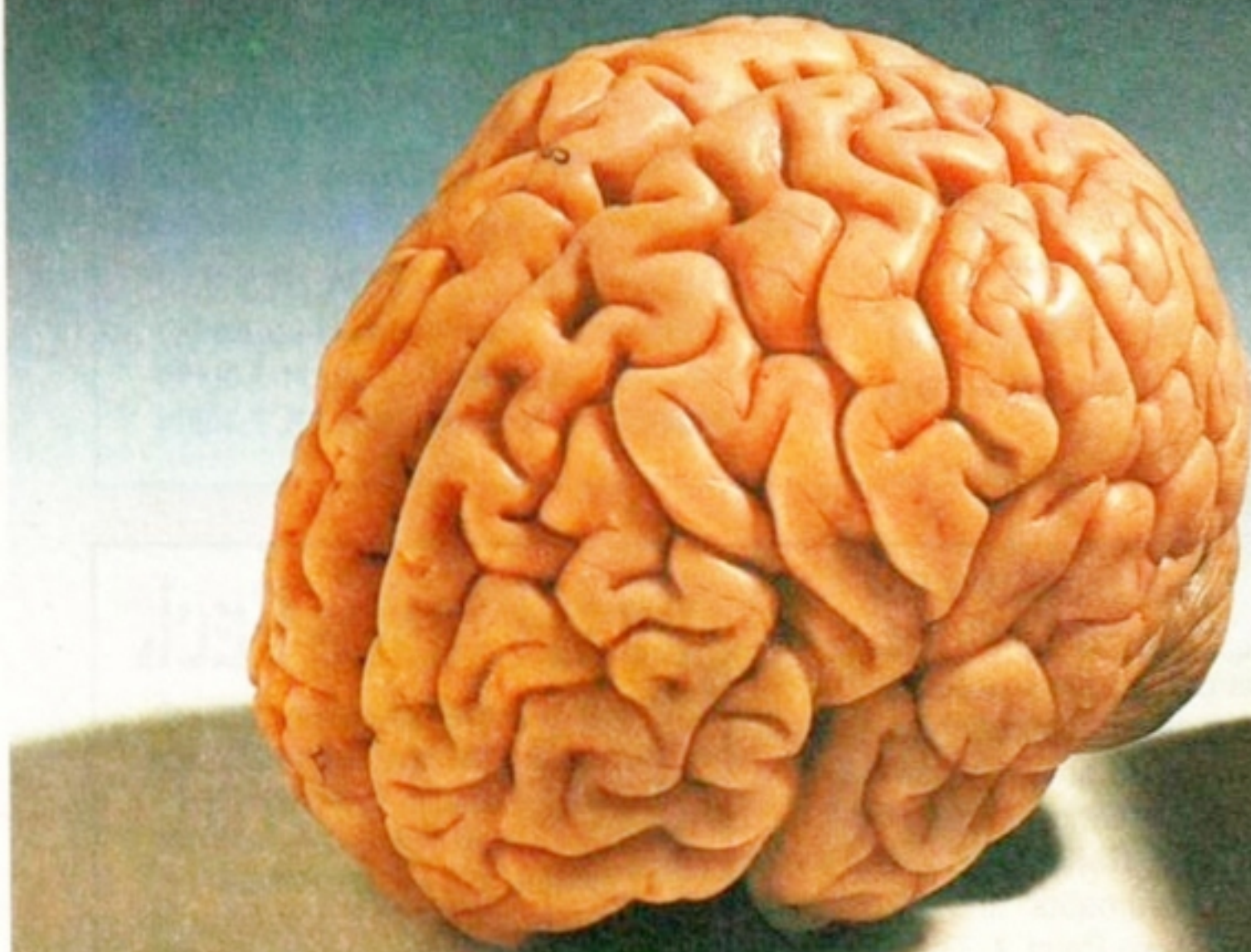
Price

At \$1,595 it's hard to give it less for all that the *Toaster* contains. Nothing delivers this quality of treatment for video and this level of integrated functionality. In short there is no competition at this price, and value for money is way up there.

Overall rating

An innovative and highly impressive product, let down slightly by a few niggling technical inconsistencies (manual, missing features or files and occasional video blanking errors). Nevertheless, a gizmo which will certainly be setting the PAL video production market alight, as it already has to NTSC in the States.

FREE
DISKS OF THE LATEST
PD SOFTWARE
WITH ANY PURCHASE FROM THIS AD*
(DEMOS UPDATED REGULARLY)



A brain

The next best thing

CORTEX 8Mb RAM Expansion for the Commodore Amiga A500/A1000

- External fitting. Warranty remains intact
- Fully implemented auto-configure
- Fully operational through-bus
- Uses standard 1M x 8 bit or 1M x 9 bit SIMMs
- Complete with its own power supply unit (UK, US or EURO)
- Designed with A1000 compatibility in mind
- Zero wait-states
- RAM test software

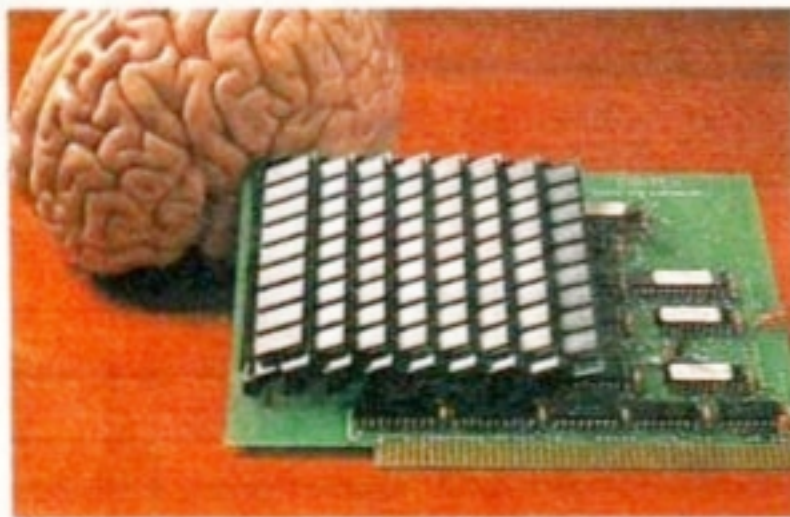


**Commodore
Approved**

2Mb **£269** 4Mb **£349** 8Mb **£519**

CORTEX 8Mb RAM Expansion for the Commodore Amiga A1500/A2000

- Fully implemented auto-configure
- Zero wait-states
- Uses standard 1M x 8 or 9 bit SIMMs
- 2, 4, 6 or 8Mb configurations possible



2Mb **£199** 4Mb **£289** 6Mb **£369** 8Mb **£449**

CORTEX External 3.5" Floppy Drive

- High-quality silent mechanism
- Enabled/disable switch
- Through port

£59

"The Cortex unit is the best that has ever passed through my hands . . . This is THE board for the A500 user who wants memory."

John Kennedy, Amiga User International, December 1990

"What a joy! This really is an expansion and a half."

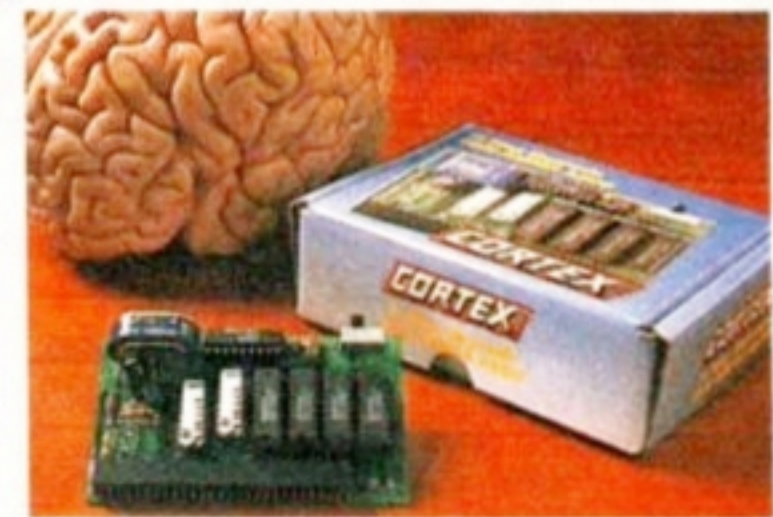
Pat McDonald, Amiga Format, November 1990.

"There is nothing in the universe more annoying than the lack of a through port, except perhaps the tendency of Volvo drivers to cut out in front of my GPz550."

Nick Veitch, Amiga Computing, December 1990

CORTEX 512K RAM Expansion for the Commodore Amiga A500

- Low power 1 Mbit RAM chips
- Enable/disable switch
- "Fatter" Angus compatible for 1Mb Chip RAM
- Available with or without battery-backed clock/calendar module **£27.95**



Clock version **£31.95**

CHIP UPGRADES

1Mb Agnus Chip 8372A - Requires some technical skill to fit

£60

Kickstart ROM upgrade version 1.3

£35

256K x 4bit DRAM chips (for CBM A590, CBM 2091, ICD Ad RAM, Ashcom etc)

0.5Mb £25

1Mb £49 2Mb £95

A3000 Static Column Mode DRAM upgrade

4Mb £269

1M x 8 bit SIMMS for CORTEX 8Mb cards

2Mb £90

4Mb £175 6Mb £260

*All prices include VAT and postage & packaging.
Dealer enquiries are welcome.*

CORTEX

Cortex Design Technologies Ltd., Britannia Buildings, 46 Fenwick Street, Liverpool L2 7NB, England.

U.K. Tel: (051) 236 0480 • 24 Hour Sales (051) 227 2482 • 24 Hour Fax

★ Free software is limited to one set per order and is supplied without warranty

FIRST CHOICE LEEDS COMPUTERS



**WEST YORKSHIRES PREMIERE
AMIGA AND ATARI COMPUTER STORE**
AUTHORISED DEALERS FOR STAR, CITIZEN
COMMODORE, ACORN AMSTRAD & ROMBO

**Come and visit our
showroom. Most of
our products are on
demo**

OPENING HOURS :
OPEN MON-SAT 9.00AM-5.30PM
SUNDAY OPENING 11.00AM-3.00PM
THURSDAY NIGHT LATE TIL 7.30PM

AMIGA A500 STARTER PACK

Inc. Workbench 1.3, mouse,
TV modulator, leads, Extras disk,
manuals and tutorial. **Plus, Spritz
Paint**, a versatile, easy to use paint
package that will allow you to
explore the powerful graphics of
your Amiga
only £299.99

The New Amiga A500 Cartoon Classics

This pack comes with Lemmings,
(the only game ever to get a
100% rating!) The Simpsons,
Captain Planet; and Deluxe Paint
3 the incredible paint and
animation package.
**This pack comes complete
with one meg of RAM
only £379.99**

The Software Classics Pack

This pack comes with classic
software titles such as Populous +
Promised Lands, the award
winning Sim City + Terrain Editor,
the amazing Battle Chess, and the
powerful animation and graphics
pack Deluxe Paint 3. **This pack
comes as standard with 1 meg
of RAM
only £379.99**

First Choice Pack

Take the headache out of
buying a computer with our
**First Choice Computer
Pack**. Ideal for any Amiga
computer. Comprises:
A top quality Cruiser Black
joystick, Mouse Mat, Dust
Cover, 10 Blank Disks and 3
Extra games
only £29.99

CDTV
Commodore
Dynamic Total Vision
What is CDTV?
CDTV combines a
professional audio
system, advanced Amiga
technology and remote
control, thus creating a
system with superior
sound and graphics.
We have a large selection
of software available at
discount prices.
only £559.99

AMIGA 1500/2000 PACKS

Amiga 1500 Base Pack

The Amiga 1500 is an Amiga
2000 with 2 floppy drives instead
of the usual one. The big
advantage of the 1500/2000 over
the A500 is its ability to take
expansion internally with ease.
The Base Pack comes complete
with 2 floppy drives, Workbench
1.3, mouse, manuals, and a
separate keyboard.
only £579.99

Amiga 1500 Business and Classic Software pack

Same as the base pack but with
Deluxe Paint 3, Platinum Works
(the best integrated pack available
for the Amiga), Their Finest Hour,
Sim City + Terrain Editor, Populous
+ Promised Lands, Battle Chess,
and Amiga Format Tips Book.
only £679.99

**Amiga 1500 Base Pack
with Commodore 1084SD.**
Same as the base pack but with the
Commodore 1084SD monitor
only £819.99

**Amiga 1500 Business and
Classic Software Pack
with Commodore 1084SD.**
Same as the 1500 base pack but
with Commodore 1084SD and
the utility and entertainment pack
only £869.99

STAR PRINTERS

Star printers inc free printer

Star LC200

Colour 9 pin printer with 8 resident fonts
and a high speed of 225cps draft and 45
cps in NLQ. A4 Landscape printing
only £214.99

Star LC24-200

Mono and colour. 222 cps draft and
67 cps LQ 10 resident fonts. A4
Landscape printing
**only £249.99 mono
or £299.99 colour**

The New Star LC20

Replacing the famous LC10, the
LC20 is faster at 180cps draft and
45 cps NLQ. The front panel
now has push button operation
replacing the LC10 membrane panel.
other spec is similar to the LC10
only £149.99

Star LC10

This award winning 9 pin printer is
now available at a super low price.
144 cps draft, 36 cps nlq. 4k buffer
only £139.99

Star XB24-10 Professional Series Colour

The choice of many professional
organisations, this printer
comes with one year on-site
maintenance. 240 cps draft, 80 cps
NLQ. 27k buffer exp to 187k, 4
super fonts and 25 NLQ fonts
(through printer code output)
only £349.99

Star LC24/10

24 pin quality at the price of many 9
pins. 180 cps draft, 60 cps in NLQ,
8k buffer expandable to 37k
only £199.99

CANON BUBBLEJET

BJ10e Bubble Jet

The BJ10e is a revolution in printer
technology. The quality is almost as
good as an expensive laser printer
yet costs less than many 24 pin printers.
Portable insize, very quiet, and faster
than most dot matrix printers at 83 cps
in LQ. Printer cable included.
Highly recommended
only £259.99

**Auto sheet feeder for
BJ10e.....£52.99
Inc cartridges.....£18.95**

CITIZEN PRINTERS

All Citizen printers inc free
printer cable and come with a
full 2 year warranty

Citizen 124D

(Micro Decision Best Buy)
The 124D brings quality 24 pin
output to you at the price of a 9
pin. The 124D shares the same
high quality print head as the
Swift 24 pin. 144cps draft, 48 cps
LQ, 8k buffer expandable to 40k
only £199.99

Citizen Swift 9/9x Colour

Unbeatable value colour printer. 4
resident fonts, 192 cps draft and 48 cps
in NLQ. Highly recommended. This
printer is also available in a wide
carriage (136 column) version.
**only £189.99 (80 col)
or £279.99 (136 col)**

Citizen Swift 24/24x (What Micro Best Buy)

This printer must be the best 24 pin
colour printer for less than £300. 8k
buffer expandable to 40k, 192 cps
draft, 64 cps LQ.
**only £284.99 (80 col)
or £389.99 (136 col)**

EPL7100 Laser

Now with 1 meg of RAM as
standard expandable to 6 meg.
6 pages per minute, HP2,
LX, LQ. GQ compatible.
250 autosheet feeder,
12 months on-site maintenance
**only £869.99
Imaging cartridge
£119.99**

We are registered dealers of Star and Citizen printers

The Complete Colour Solution

by ROMBO

As official dealers for Rombo, we are now able to offer this excellent package at a great price. The Complete Colour Solution comes with RGB Splitter, Vidi Amiga, Vidi Chrome and Power supply

now only £134.99

VIDI AMIGA

Frame grabber. High quality digitizing. Inc Vidi chrome colourising software only

only £84.99

RGB SPLITTER

Enables you to Colour Digitize in a second. Replaces red green blue filter set. Can be used with Digi view or Rombo products

only £64.99

GOLDEN IMAGE HAND SCANNER

Due to a bulk purchase of this famous scanner, we are now able to offer you high quality scanning at a fraction of the normal cost. Complete with touch-up software the Golden Image scanner is able to pick out text and graphics at up to 400 d.p.i. Touch-up enables you to easily manipulate the image. Ideal for desk top publishing and presentation.



offer price only £129.99
(while stocks last)

DISCOUNT SOFTWARE

PLATINUM WORKS

We believe this to be the best all round integrated business package on the Amiga. It comes with Platinum Scribble w/p, spell checker and thesaurus. the excellent Analyse, a lotus 123 compatible spreadsheet with 3D graphics, a database, a sideways printing utility and communications software

only £59.99

PEINPAL

This best selling word processor incorporates many features found only in a desk top publisher. Also includes an easy to use database.

Highly recommended
now only £59.99

IMAGINE

Imagine, the ultimate 3D animation rendering system
now only £159.99!!

DELUXE PAINT 3 special offer!!

Paint and animation in one incredible package

only £39.99

or **£29.99** when you buy a 1Mb amiga computer, RAM expansion, or colour printer

PAGESREAM V2.1

A powerful DTP package for professional use
only £139.99

WORDWORTH

The latest highly acclaimed WYSIWIG word processor. Comes with multiple fonts, powerful thesaurus, large spellchecker, speech synthesis

only £87.99

SUPER SOFTWARE BUNDLE

Their Finest Hour, Sim City + Terrain Editor, Populous + Promised Lands and Battle Chess

only £39.99 !

OTHER SOFTWARE

Pagesetter 2 DTP.....£45.99
Pro Video Plus.....£149.99
New Amos Compiler.....£24.99
Amos Game Creator.....£38.99
New Amos 3D.....£27.99
Sequencer One.....£74.99
Music X version 1.1.....£99.99
Digi View Gold 4.....£99.99
GB Route Planner.....£34.99
3D Text Animate.....£19.99
Text Scroller.....£19.99
Flexidump printer utility.....£31.99
Xcopyutils.....£34.99

PERIPHERALS

Hard Drives:

Amiga A590 20 Meg

for A500 inc 2 meg of unpopulated RAM

only £289.99

or populated to 2 meg of RAM

now only £345.99

Protar Hard Drives for the A500 with 8 meg of unpopulated RAM

MEG	Price
20.....	£279.00
30.....	£348.00
50.....	£428.00
50DC.....	£528.00
60.....	£541.00
80.....	£598.00
100DC.....	£638.00
160DC.....	£938.00

The DC range have an access speed of 11 to 19ms, a 64K disk cache and come with full 2 year warranty. The standard range come with a 1 year warranty and run at 28 to 40ms.

Quantum Hard Drives
52 meg.....£229.99
105 meg.....£369.99

GVP Series 2 Hard Disk Controller Card

with 8 MEG of unpopulated RAM (uses SIMM 1"8/9 cards) For the 1500/2000. Ideal for use with Quantum drives

only £199.99

Special offer!! HBM Genlock

same spec as the Rendale 8802 but with free Home Titler software
only £129.99
(limited stocks)

ICD Flicker Free Video

Ideal for use with a VGA monitor. Gets rid of annoying flicker
only £249.99

Samsung VGA Colour Monitor.....£249.99

DISK DRIVES

Zydec 3.5"

1 meg external drive, high quality low noise and high reliability

only £57.99

Cumana 3.5"

1 meg external drive. The best name in disc drives now at a super low price

only £59.99

NAKSHA MOUSE

This famous Hires mouse now come with Operation Stealth, mouse mat, holder and 2 year warranty
only £24.99

SQUIK MOUSE

very similar to the Naksha but without the extras
only £18.99

MONITORS

Commodore 1084 SD1

Colour stereo monitor. 640*256 line resolution, green screen facility, cable for Amiga included

only £254.99

Philips CM8833 MK2

Colour stereo monitor. 640*200 line resolution, green screen facility, one years on site maintenance, cable for Amiga included

now only £234.99

RAM CHIPS

256*4 ideal for A590 & 1 Meg by 1 chips suitable for 8 up boards and others:

QTY	Price
4+.....	£4.99
8+.....	£4.79
16+.....	£4.49

1 MEG by 8/9 SIM boards only £39.99

DISKS

All our disks 3.5" disks are **GUARANTEED FOR A LIFETIME** and are **CERTIFIED 100% ERROR FREE**. Both Verbatim and KAO double sided, double density disks are recognised as being of the highest quality in magnetic media

Verbatim Bulk KAO Branded

Capacity	Verbatim Bulk Price	KAO Branded Price
10.....	£4.99	£6.99
25.....	£10.99	£13.99
50.....	£19.99	£25.99
100.....	£36.99	£44.99
200.....	£69.99	£84.99
300.....	£99.99	£124.99
400.....	£123.99	£159.99
500.....	£144.99	£189.99
1000.....	£269.99	£329.99

Disk Labels.....500.....**now only** £6.99
Disk Labels.....1000.....**now only** £9.99

Emulators:

KCS Power board PC/XT emulator comes with Dos 4.01.
only £218.99

AT Once

AT emulator turns your Amiga into an IBM AT compatible.....**£174.99**

SUPRA RAM EXPANSION

The ultimate Amiga A500 expansion Take your A500 up to 9 Mb Fits onto the side expansion port Auto configured, no software patching

8 Mb pop to 2 Mb..£194.99
8 Mb pop to 4 Mb..£294.99
8 Mb pop to 8 Mb..£489.99

ASHCOM 1.8 MEG RAM

Take your A500 up to 2.3 megs total RAM with this easy to fit board

UNPOPULATED	£34.99
512K POPULATED.....	£52.99
1 MEG POPULATED.....	£89.99
1.5 MEG POPULATED.....	£106.99
FULLY (2 MEGS).....	£124.99

* Additional Gary board supplied with One meg expansion or above *

512K RAM EXPANSION

Top quality Protar memory expansion for the A500 complete with battery backed clock and on/off switch that can be mounted externally for easy access. This RAM expansion will not in any way invalidate your warranty!!

only £29.99

MAIL ORDER?

Order by telephone quoting your credit card number. If paying by cheque please make payable to **FIRST CHOICE**

TEL. 0532 637988
FAX. 0532 637689

Please address all correspondence to:

DEPT AS, UNIT 8, ARMLEY PARK COURT, OFF CECIL ST, ARMLEY, LEEDS LS12 2AE

WHY FIRST CHOICE?

- * All prices include VAT and fast delivery
- * All products are genuine UK spec.
- * Free postage UK mainland
- * Next day delivery only £3.00 extra !
- * Goods despatched same day as order unless otherwise stated.

Personal Cheques Will Require Clearance Before We Can Despatch Your Goods. All Prices Correct At Time Of Going To Press. All Items Listed In Our Advertisements Are Ex Stock Ready To Ship Unless We Advise Otherwise. Computers Are Always Tested Before Despatch E&OE.

MJC COMPUTER SUPPLIES

Suppliers of Discount Software since 1984

Educational, Local Authority and government orders welcome. Overseas orders please call or write for quotations. All goods subject to availability, prices subject to change without notice. E & O E.

Prices include VAT and delivery by post.
Courier delivery available on any item £5.

TO ORDER: Please call the telephone number listed below to place credit card orders (Access/Visa) or send cheques/POs made out to MJC Supplies to:

MJC SUPPLIES (ASH)
Unit 2 The Arches, Icknield Way,
Letchworth, Herts. SG6 1UJ.
Tel: (0462) 481166 (6 lines)

PROTAR PRODUCTS

Protar are a well known German company who have now opened in the UK. They produce a range of quality products for the Amiga at very reasonable prices. All products are backed by an impressive 1 year REPLACEMENT warranty direct from the manufacturers. NOTE: Protar products due September.

PROTAR A500 HARD DRIVES

A range of drives from 20Mb to 200Mb all with an impressive list of features:

- Optional Ram expansion up to 8Mb
- Transfer rate greater than 1Mb/second
- Up to FIVE times faster than A590
- Drive disable switch
- External SCSI interface

PROTAR A500 HD 20Mb version £279.00
PROTAR A500 HD 30Mb version £349.00
PROTAR A500 HD 50Mb version £429.00
FREE Courier delivery on Protar Hard Drives

PROTAR C141M MONITOR

Based on the Philips CM8833 the C141M comes with a variety of inputs and complete with leads.
MJC PRICE £248.00
FREE Courier delivery on Protar Monitors

PROTAR 1/2 Meg Memory Expansions

1/2 Meg internal (trapdoor) expansion, latest 4 chip design with battery backed clock.
MJC PRICE £27.95

SUPRA 500RX EXPANSIONS

New memory expansions for the A500 - plugs directly into the HD expansion port - NO INTERNAL CONNECTOR REQUIRED
SUPRA 500 RX EXPANSION 1Mb £119.95
SUPRA 500 RX EXPANSION 2Mb £189.95

GOLDEN IMAGE OPTICAL MOUSE

A true optical mouse - no more balls!
includes special optical mouse pad
MJC PRICE £34.95

NAKSHA UPGRADE MOUSE

280 DPI with FREE Mouse House + Mat
now also includes free Op Stealth game
MJC PRICE £21.95

SQuik - Replacement Mouse

Same spec and design as Naksha mouse
MJC PRICE £14.95

CUMANA CAX 354 DISK DRIVE

Quality Brand name 3.5" second drive
includes thru port, disable switch
and No Hassle 1 year guarantee.
INCLUDES FREE VIRUS-X UTILITY
MJC PRICE £59.95

A1500/2000 PERIPHERALS

SUPRAM - add on Ram cards with space for up to 8Meg of extra Ram.

SUPRAM with OK fitted **£84.95**
SUPRAM with 2Mb fitted **£159.95**
SUPRAM with 4Mb fitted **£225.00**
SUPRAM with 8Mb fitted **£349.95**

SUPRA HARD DRIVES

Using the fast Wordsync 2000 controller and quality Quantum drive mechanisms.
(A1500/2000)

SUPRADRIVE 52Mb (11ms) **£389.95**
SUPRADRIVE 105Mb (11ms) **£529.95**

GVP SERIES II HARD DRIVES

Quality drives with the ability to add up to 8 Meg of extra Ram on board.
(A1500/2000)

52 Meg (11ms) version **£419.95**
105 Meg (11ms) version **£539.95**

GVP Series 2 controller board **£199.00**

SIMMS Modules - **£79.95** per 2 Meg

MICROWAY FLICKER FIXER

Eliminate interlace flicker from your A1500/2000 - requires Multisync or a 31MHz scan monitor.
(not PAL overscan)

MJC PRICE £139.95

PANASONIC C1381 MULTISYNC MONITOR

At last a quality multisync monitor at an affordable price. Works in ALL Amiga modes ideal for use with the Microway Flicker Fixer. A quality product backed by TWO YEAR on-site maintenance.

MJC PRICE - CALL

GOLDEN IMAGE HAND SCANNER

Quality 400 dpi scanner with powerful Touch Up enhancement software.

MJC PRICE £139.95
LIMITED STOCKS!

WORDPROCESSORS

Kind Words 2 £29.95
WordWorth £84.95

PROTEXT Version 5

A very fast command based package now with 110 000 word Collins Dictionary, Mail Merge and up to 36 files open plus much more - call for details. (1 Meg)

MJC PRICE £99.95

PROTEXT V4.3 £64.95
PRODATA AMIGA £55.95

AMIGA EDUCATIONAL

Fun School 2

Fun School 2 under 6.....12.95
Fun School 2 6 to 8.....12.95
Fun School 2 over 8.....12.95

Fun School 3

Fun School 3 under 5.....15.95
Fun School 3 5 to 7.....15.95
Fun School 3 over 7.....15.95

LCL Software

Primary Maths Course.....19.95
Micro Maths GCSE.....19.95
Micro English GCSE.....19.95
Micro French GCSE.....19.95

Kosmos Software

Junior Quiz 6 to 11.....14.95
Senior Quiz 14+.....14.95
French Mistress.....14.95
German Master.....14.95

Learn to Read With Prof - by Prisma, is designed to teach a sight vocabulary of 63 words and is aimed at 4+ years.

The pack includes 5 small reading books and a cassette.

MJC PRICE £19.95

DESKTOP PUBLISHING

Pagesetter 2 - (Free Clip Art) **47.95**
Pagestream V2.1 **139.95**
Pro Page V2.0 **169.95**
The above programs all require at least 1 Meg and 2 drives/Hard recommended.

VIDEO TITLING/PRESENTATION

Big Alternative Scroller **42.95**
TV Show - IFF slide show **54.95**
TV Text Pro - quality fonts **79.95**
Broadcast Titler II **169.95**
Broadcast Font Pack (10 Fonts) **84.95**
Broadcast Font Enhancer Pack **84.95**

ZVP VIDEO STUDIO

Great Video Production package - call for details
(requires 1 Meg + 2 drives)
MJC PRICE £89.95

RENDALE 8802 GENLOCK

Great value Genlock offering both Foreground and Background modes.

MJC PRICE £159.95

8802 MODE SWITCH BOX - £29.95

GRAPHICS

Pixmate **34.95**
Digi Paint 3 **44.95**
3D Construction Kit **37.95**
Digiview 4 Gold **89.95**
Deluxe Paint 3 **57.95**
Disney Animation Studio **74.95**

DELUXE PAINT 3 VIDEO TUTORIAL

Nearly 3 hours of 'how to' with DPaint 3
MJC PRICE £17.95

AMOS - The Creator

AMOS V1.2 - The Language £33.95
AMOS COMPILER - now available £21.95
AMOS 3D - now available £24.95

SOUND/MUSIC

MasterSound Amiga **£29.95**
Techno Sound Turbo (Stereo) **£29.95**
Harmoni - Sequencer **£29.95**
Alter Audio - Midi Starter Pack **£79.95**

THE MIDI CONNECTOR

Featuring Midi In, 2 x Midi Out, Midi Thru and Serial port Thru + 2 cables.

MJC PRICE JUST £14.95

MISCELLANEOUS

INFOFILE **29.95**
MAXIPLAN PLUS **39.95**
SUPERBASE **49.95**
SUPERPLAN **49.95**
PERSONAL FINANCE MANAGER **22.95**

VIDI AMIGA

VIDI COLOUR SOLUTION

Vidi Colour package - including Vidi Digitiser, Vidichrome and Photon Paint
MJC PRICE £95.00

RGB SPLITTER - for use with Vidichrome or Digiview. (includes PSU)

MJC PRICE £59.95

COMPLETE COLOUR SOLUTION

Package includes Vidi Amiga, Vidichrome and the RGB Splitter for a complete colour digitising outfit. NOTE: For best colour pictures you require a video camera or perfect still frame VCR

MJC PRICE £139.95

VISA

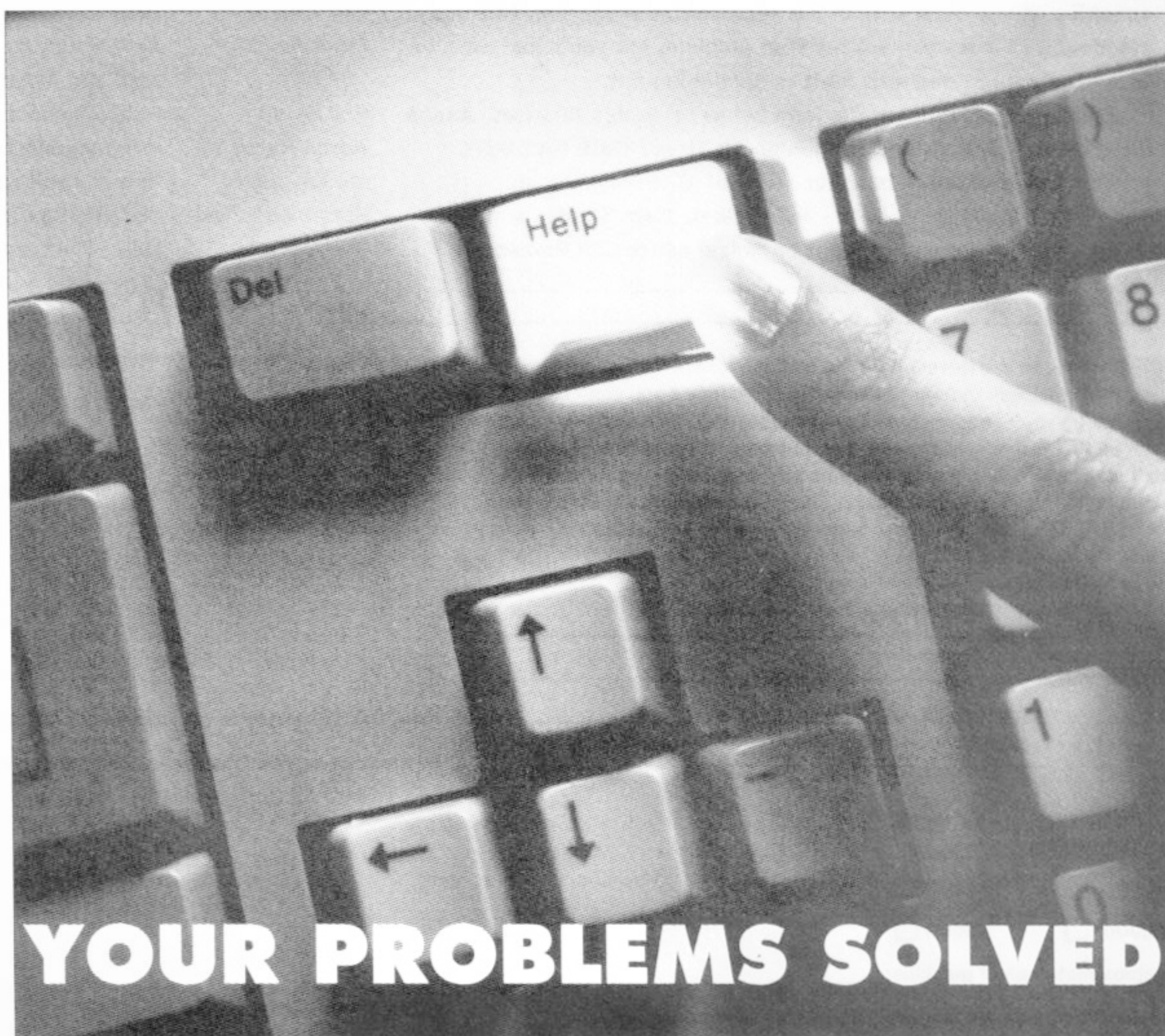
Remember - prices include VAT & delivery!

Access

CONTENTS AT-A-GLANCE

Agnus	71
AmigaDOS	59
ARexx	65
Assembler.....	57
Autobooting	69
Beginners	71
Business.....	51
CAD.....	66
Clock.....	58
Comms	52
Compatibility	60
Copying disks	73
CP/M.....	52
Crashing Amiga.....	57
Database	51
Deluxe Music.....	57
Deluxe Paint III.....	57
Devpac 2	57
Disks	71
File transfer	52
Flicker fixers.....	70
Genlock	51
GIF	58
Hard drive partitioning.....	70
Hard drives	51, 67
Icon editing.....	65
Icons	67
Keyboard polling	60
Memory	71
MIDI	65
Multi-tasking.....	72
Music notating.....	66
Pascal	69
Phone dialling	60
Printer cartridges	65
Printer drives	70
Printing.....	57, 67
Programming	59, 69
Public Domain.....	58
RAM upgrade.....	57, 66
RAM disks	71
Screen corruption.....	58
Scribble	58
Shell	73
Video	51, 67
WIMP	72
Word processor.....	51

AMIGA ANSWERS



SO WHAT DO ALL THOSE ICONS MEAN?



Beginners:
this icon
will appear
next to any
questions which are
'basic' in content.



General:
this icon is
used for
any
general Amiga-related
queries.



Caution:
be sure
that you
fully
understand the answer
before trying it out.



Danger:
the answer
to this
question
could well invalidate
your warranty – or you!



Hardware:
this icon is
used to
denote
questions relating to
general hardware.



**Buying
advice:** we
use this
icon if the
question asks us for
buying advice.



Printers:
this icon
denotes a
query
about printers, printer
drivers and so on.



Technical:
any
queries
about
programming will have
this icon next to them.



Video: this
icon
relates to
any query
about using your Amiga
with video hardware.



Music: this
icon is for
questions
about
MIDI, sampling,
synthesizers and so on.



Programs:
any
program-
specific
queries have this icon
next to them.



Comms: if
your
question
relates to
comms, this is the icon
that we'll use.

WHATEVER YOUR PROBLEM WITH THE AMIGA, WE ARE HERE TO SOLVE IT

That's the task we have set ourselves in giving you the best possible support for your Amiga. We are confident that our experts can cope with any technical questions you can throw at them. If they don't already know the answer to your problem, they will find it out for you.

We are prepared to deal with any problem you have with the Amiga, from general enquiries about AmigaDOS or Workbench, through questions about specific pieces of software and hardware, to advice on what you need to buy to do a particular task. If it's to do with the Amiga, we will help out. What we cannot do is offer this service over the telephone – do not phone us with your enquiries, but write to us at the address below.

We also cannot enter into personal correspondence – all enquiries will be dealt with in the pages of the magazine. This does mean a bit of a delay in solving your problem, but you'll just have to be a little patient and wait for it to appear in print.

Send your question on the form below to: *Amiga Answers, Amiga Shopper*, Beauford Court, 30 Monmouth Street, Bath BA1 2BW.

The Amiga Answers panel consists of all three of *Amiga Shopper's* consultant editors – Jeff Walker, Mark Smiddy and Phil South – and, of course, resident technical editor Cliff Ramshaw. We

will also be calling on the services of all our other contributors, so you won't be able to catch us napping on any subject. Each panelist will be dealing with queries in their own specialist area and it would help us greatly if, when writing, you label your query envelope with the name of the expert who can solve your particular problem. Below is a list of their areas of expertise. It's a list that we will add to and update every month so you will know who to write to about any subjects not mentioned here.

<i>Gary Whiteley</i> –	Video
<i>Stewart Russell</i> –	Comms, CAD
<i>Paul Overaa</i> –	Programming, music
<i>Mick Draycott</i> –	Hardware, programming, MIDI
<i>Jeff Walker</i> –	Desktop publishing, programming
<i>Mark Smiddy</i> –	AmigaDOS, business, CDTV, hardware projects, hard and floppy disk drives
<i>Phil South</i> –	Public domain, graphics, AMOS
<i>Jolyon Ralph</i> –	Programming, hardware
<i>Ian Wrigley</i> –	American sitcoms, maths, beer
<i>Stuart Anderton</i> –	Obscure bands and hi-fi
<i>Cliff Ramshaw</i> –	The really hard stuff that no-one else can answer

If you send in a question for the Amiga Answers experts, please fill in and include the form below (or a photocopy if you don't want to cut up your magazine). And please also make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: *Amiga Answers, Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW. Sorry, but we cannot personally reply to any questions – even if you include an SAE.

Name: _____

Address: _____

Your machine:

A500 ☐ A1000 ☐ A1500 ☐

A2000 ☐ A3000 ☐

Approximate age of machine: _____

Kickstart version (displayed at the 'insert Workbench' prompt)

1.2 ☐ 1.3 ☐ 2.x ☐

Workbench revision (written on the Workbench disk)

1.2 ☐ 1.3 ☐ 1.3.2 ☐ 2.x ☐

PCB revision (if known). Do not take your machine apart just to look for this! _____

Total memory fitted (see AVAIL in Shell for 1.3 Workbench) _____

Chip memory available (see AVAIL in Shell) _____

Agnus chip (if known) _____

Extra drive #1 (3.5"/5.25") as DF_: Manufacturer _____

Extra drive #2 (3.5"/5.25") as DF_: Manufacturer _____

Hard disk: _____ Mb as DH_: Manufacturer _____

Extra RAM fitted – type, size in Mb and manufacturer _____

Details of any other hardware which could help us to answer your question:

Now, use this space to describe your problem, including as much relevant information as possible. Please continue on a separate sheet if necessary.

CHAINING HARD DRIVES

A Please could you tell me how to daisychain two A590 hard drives together? On the hardware side, I think I have done the correct thing by only using one controller and connecting the other drive to the spare internal XT connector and spare power (I had to solder in extra 40-pin and 3-pin connectors to the controller board). I then changed the position of the jumper on the spare drive. The thing that has stumped me is the software side of things. What changes do I have to make, using the setup disk, as at the moment the system will not recognise either of the drives. When I switch the computer on, the system seems to read each drive it turn, but nothing much happens after that.

Jonathan McClelland
Bangor
N. Ireland

Your problem is a hardware one, not a software one. First off, you should only use one XT connector on the board. The space for the other connector and the other power lead are not spare for people to solder on to, but depend on which drive is supplied with the A590. With the Western Digital 20Mb drive, the XT connector is on the right and the power connector is on the left. The Epson 20Mb drive supplied with early A590s is the opposite way around. This is the only reason that the board has two possible connections for power and XT drive.

To run a second XT drive you have to make a 40-way ribbon cable with three 40-way connectors on it, plugging one end into the A590 XT connector and the other two ends into the two XT drives. You then have to change the jumpers on the XT drives so that one is set to master mode and the other is set to slave. This, again, will depend on which type of drives you have.

You will then have to find an external power source for the other XT drive, as the A590 only provides enough power for one drive. **JR**

POOR, POOR VIDEO

A Although a comparative newcomer to computers, I am keen on using my B2000 (with 40Mb hard disk and Rendale 8802 genlock) to produce graphics to use in my videos.

I have an edit suite comprising DirectEd Plus, VHS player, S-VHS recorder, Vivanco processor and an S-VHS camcorder which I use for filming and when I replay S-VHS tapes. I will eventually replace the VHS player with an S-VHS one.

Unfortunately, although everything else works quite well, I seem to have a problem with poor quality Amiga images when genlocked. I suspect that the genlock is in 'free wheel', as mentioned in the manual.

I think that the problem is in the connection to the 'CVBS IN' of the genlock. After trying various configurations, all I get is a rolling of display on the computer monitor and the S-VHS television connected to the edit suite, or else no improvement on the poor quality display on the TV screen. I had expected much better quality from a genlock costing so much. I appreciate that an S-VHS genlock would be preferable, but I am loathe to change the one I have.

I would really appreciate any help or advice which you could give.

D. A. Smith
Warrington

I spoke to Rod Welburn at Marcam (who make the 8802) and he advised me that there may be two causes for your problem – either your Amiga is malfunctioning or the genlock is misbehaving.

In order to isolate the problem, try the following:

Connect up the computer and genlock, boot up and see if you get a stable Workbench screen. If so, then connect a composite video out from your VHS to the 8802's composite in and take the 8802's composite out to a monitor. Play the tape (as good a quality one as you've got) and check the quality. If all is OK so far, continue to try different combinations of equipment with the genlock until you either hit a problem – in which case you should then be able to

JARGON BUSTING

Genlock – A way of slaving one video source to another (for example, an Amiga to a video tape recorder) in order to synchronise their signals to allow stable wipes, mixes and other effects including overlay between the two sources.

Hard drive – Like a floppy drive, but much bigger (not physically, but in terms of storage capacity) and faster. Also, the disk from a hard drive cannot be removed, so once it has been filled it is either time to delete excess files or buy another drive.

isolate the fault – or your whole system is up and running well.

Below is a diagram to suggest how you might connect your system together for better performance.

Poor quality from a genlock is usually caused by feeding it with a poor quality signal. Since the genlock relies on the incoming video for its timing you must give it the best possible input. This will allow you to get the most stable locking possible under the circumstances. Of the current formats, VHS is arguably the worst quality. Additionally, there are graphics colours such as saturated reds and blues which will not look as good as lighter, pastel shades. This is partly to do with the Amiga itself – so experiment to find colour combinations which work best. Finally, expect some wobbling (known as 'chroma crawl') down the left hand side of your graphics – this can be a problem even with some of the best devices and is another product of the Amiga itself.

Hint: try to use hi-res Amiga images wherever possible, as these will be far crisper on screen than HAM or other resolutions.

If you run into further problems,

call Rod at Marcam on ☎ 0604 790466. He assures me that he will try his best to solve your problems for you. **GW**

BEGINNING BUSINESS

I am going self-employed, and my chosen field is (part-time) mail order. I would like to know what relevant software/hardware I will need to get started and also what upgrades and add-ons I will need as my business starts to grow.

I have been looking at various computers including the Amiga, with its excellent graphics for games, but there are many other makes and models including business computers. I don't have a clue about which one to choose. I have read magazines and contacted relevant computer companies but no-one seems to cater for the complete novice.

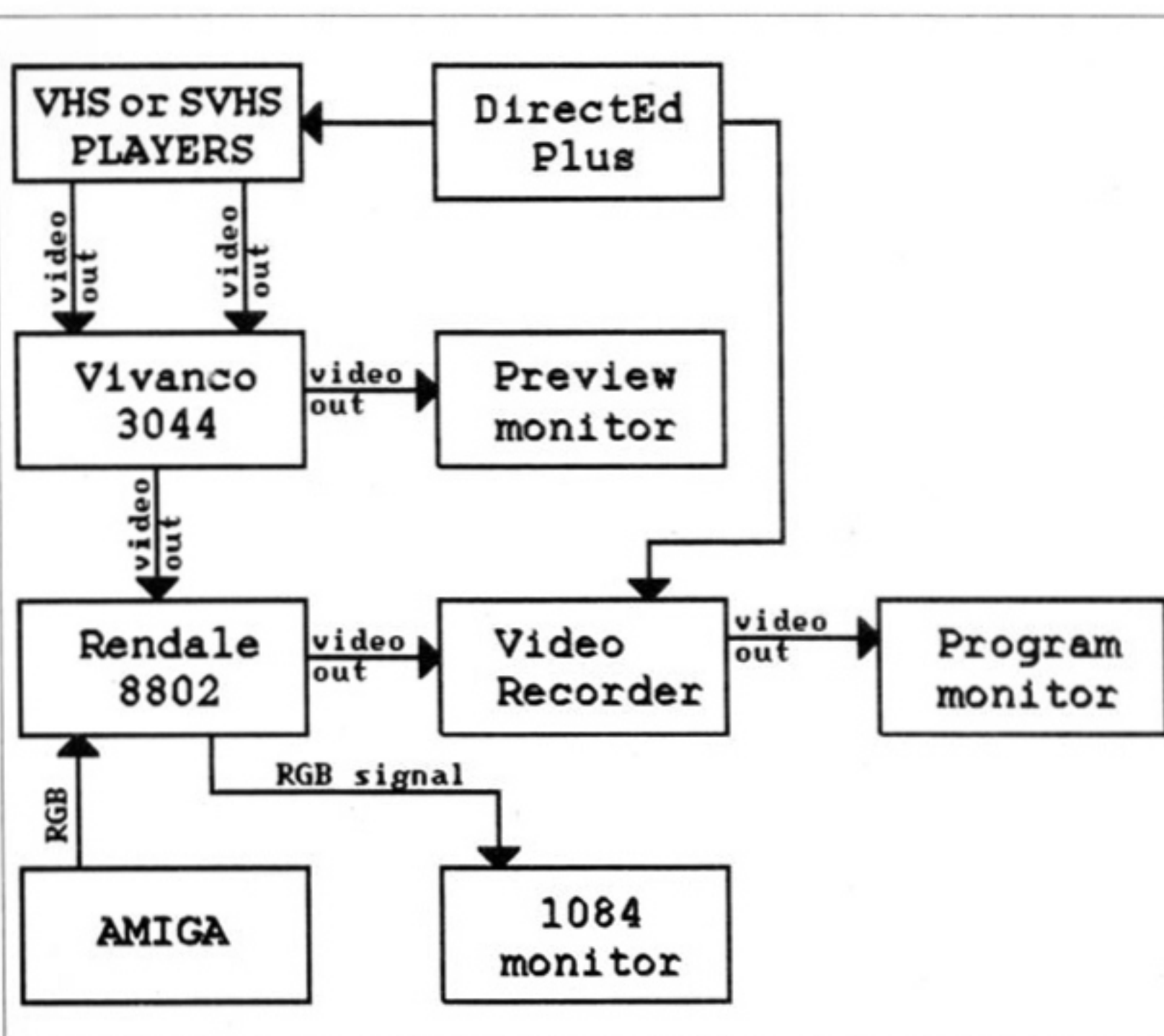
It seems that the Amiga A500 is the perfect choice to make a start in business, and your magazine has made me aware that it is much more than a computer to play games on; but how does it differ from other business machines?

Alex Baldwin
Thornaby
Cleveland

The Amiga is the perfect choice to start a small business. It stands to reason that if a computer has the power and sophistication to play great games, then to merely display accounts, calculate spreadsheets, record data and type letters should be well within its capabilities. This is even more relevant now. For people like myself, games have always been the spin-off of a really good computer but not its original intention. The fact remains that the Amiga can perform as well or better than most so-called business computers whilst multi-tasking (performing more than one action at a time) and displaying pleasing multi-coloured screens.

I hope that the above clears-up your worries that the Amiga is only a games machine; many business machines even now do not have the

continued on page 52



Connecting the Amiga to a video system with a genlock.

continued from page 51

facilities which are on offer to the Amiga owner.

Now the deep stuff begins. In order to run your business effectively, you will need a good database. This will enable you to keep records of customers' names and addresses. By using calculated fields you can keep track of their current balance. This is all very well, but you also need to despatch invoices and control stock flow. I would still suggest that you purchase a database, but you may find that a dedicated business program such as an accounts program would be more suitable.

A word processor is always a must, and frankly I can't see you requiring any more than good basic efficiency. You will not need the facilities to print in colour or even high resolution, a normal WYSIWYG (what you see is what you get) should suffice. For more information on word processors, see the in-depth feature on pages 15-32 of this issue.

The upgrades you will require as your business grows will depend upon the rate of growth and future potential. The first consideration should be to increase your available RAM. This is the internal memory available to the computer. Because the Amiga is a true multi-tasking machine, the ability to perform more than one task at a time will ultimately depend upon the amount of available memory to perform this function. Also, increasing the amount of RAM available will increase the size of the RAM disk (a pseudo-disk drive contained within the computer's memory). I would suggest a system with around 2 to 3Mb of RAM should be considered.

Then there is the question of disk drives. A single drive system is clumsy and awkward, because of the disk swaps that this configuration requires. You can buy an external 3.5-inch drive from any good computer stockist.

For any serious business use, in fact, you should seriously consider a hard disk drive. In most cases a drive of around 20-40Mb would be sufficient, but it is a wise precaution to allow for the maximum media storage from the beginning. Although

you can upgrade as you go along, it is not always convenient to send the computer away to increase the hard disk capacity, especially when this could have been avoided from the outset. Therefore, I would suggest that you consider a large capacity drive - 40Mb upwards.

A monitor is also essential for business use, so be prepared to spend anything from £200-300 for a suitable medium- to high-resolution model. To cut the cost, a monochrome monitor which displays just two colours (black and white or green and black) should be available for about half the price - but then, of course, you will not have the superb colours that the Amiga is famous for.

Finally the printer. You get what you pay for with printers; the art is to find one that will suffice for the least possible cost. Laser printers, daisy-wheel and ink-jet printers all have their place. I would think that a good 9-pin dot-matrix printer would be sufficient for your purposes, and of course colour is entirely optional. We reviewed a number of printers in issue 4 of *Amiga Shopper* - back issues of the magazine are available from ☎ 0458 74011.

The costs quoted below are approximate and will obviously differ between suppliers:

Initial purchase:

Amiga A500	Around £350.00
Monitor	£250.00
9-pin printer	£185.00
40Mb hard disk drive	£300.00

Upgrades as required:

3.5-inch floppy drive	£60.00
2Mb RAM expansion	£200.00

MD

CP/M TO DOS TRANSFER



I have a Spectravideo 328 computer with two 5.25-inch disk drives. I have a lot of files and data collected over the years and use programs like SuperCalc, SuperWriter, ReportStar, CalcStart and so on, which run under CP/M 2.2. I recently upgraded to an Amiga 500, with external drive and the A590 hard disk. Could you please advise me, in detail, how I can turn those CP/M files into AmigaDOS files, so that I don't have to start feeding in existing data all over again.

**Jeffrey Kavelaars
Auckland
New Zealand**

As you probably know, you actually have two problems here. First, there's the job of physically transferring the files from one machine to the other. Secondly there's the problem of how you can actually make use of the files on the new machine.

JARGON BUSTING

Baud - The number of possible changes in state per second on a transmission line. For simple modem protocols such as V.21 and V.22, there are only two possible states, so baud rate is equivalent to a measure of bits (binary digits) per second. V.32 makes use of many more clever coding techniques, so that more bits per second can be sent at the same baud rate.

Serial port - An interface port at the back of the Amiga, used mainly for connecting to a modem for communications purposes, and sometimes used for printers. Data is sent through the serial port one binary digit at a time (one eighth of the speed of the parallel port, which is the port more usually used for connecting to a printer).

Let's look at the file transfer problem first. The easiest solution is to link the two machines via their serial ports. I have no details of the Spectravideo machine, so I can't tell how the serial lead should be wired for high speed transfer but what I do know is that if you stick to a low transfer speed, namely 300 baud, you'll find that you will be able to move files both to and from your Amiga by using a lead containing just three wires. Have a look in your respective machine manuals for the system-ground, transmit-data and receive-data serial port pin info (pins 7, 2, and 3 on the Amiga) and make up, or get a friend or the local computer shop to make up, a suitable lead. There are no dangerous currents involved, but wrong connection can easily damage the chips so if in doubt get help from someone who is used to playing around with electronics.

A lot of people are wary of hooking up serial ports like this, and there is an alternative: for a few pounds it would be possible to get your files copied from the original disks on to Amiga format disks. There are plenty of computer shops and companies who will do this. Assuming, however, that you are happy about experimenting with serial port transfer, you will presumably only be transferring text and data files plus perhaps some Basic programs. The CP/M system program PIP will do this type of thing quite easily. In fact, collecting files at the Amiga end can even be done from AmigaBasic because it supports a COM1: device which can control the serial port directly (when this is used it does, incidentally, override the Preferences setting).

Reading serial data into the Amiga is easy and can be done from AmigaBasic with just seven lines of code - the following example will read data from the serial device and place it on the RAM disk:

```
OPEN "RAM:text" FOR OUTPUT ↵
AS #1
```

```
OPEN "COM1:300,n,8,1" AS #2
XS="D" 'just a dummy value ↵
to get into loop
WHILE (ASC(XS)<>94) 'end of ↵
file terminator
XS=INPUT$(1,#2):PRINT ↵
XS;:PRINT # 1,XS;:
WEND
CLOSE 1: CLOSE 2
```

This sort of scheme could be used to collect serial data from any other machine, and the only thing you need to be careful about in the above loop is the end-of-file terminator - that is, the character which signifies the end of the file - because this varies from system to system.

To transfer a file in this fashion you'd link the two machines with the serial lead, load up AmigaBasic and run the above program. Nothing visible will happen because the program just sits there waiting to collect serial data which, when the program first starts, is not being sent down the line.

The next step is to move across to your CP/M machine. In terms of detailed help I hit a minor snag here, because I no longer have much in the way of CP/M documentation available and my CP/M-literate days are over. Being a CP/M machine, your Spectravideo will have devices like LST implemented. You will probably need to configure your system so that this device is logically tied to the machine's serial port (which again must be set to 300 baud). STAT is the CP/M system program that will let carry out these type of assignments, and this will be documented in the CP/M sections of your computer manuals. Once the output device has been chosen you'll need to load up the PIP utility and issue a suitable PIP command. Again it's the CP/M manual sections that will contain the detailed options but the basic scenario will look something like this...

First you'll run PIP and be greeted with an asterisk prompt:

• continued on page 57

LISTING BREAKS

Because of the width of the magazine's columns, we occasionally have to break listings across two or more lines. Where this has occurred, and you should enter two or more lines without a [Return] between them, we have used the following symbol: ↵

Move Over 'Screengems' The New Official Commodore Amiga Pack is at Digicom



**AMIGA
500**

**CARTOON
CLASSICS**

Free 1 Meg
Worth
£99.00

NOTICE: The RAM upgrade supplied in this offer is the official COMMODORE A501 Expansion unit. Any other Expansion will invalidate your warranty. Should the fault be related in any way

The exciting world of graphics, animation and sound is at your fingertips with the Amiga 500. Cartoon Classics brings together a fantastic selection of Cartoon games and a paint package to create your own cartoons.

Amiga A500 Computer Keyboard
Built-in 1 Meg DS/DD disk drive
512K A501 Ram Expansion
Latest Kickstart and Workbench 1.3
Notepad Mini word-processor
All necessary disks, manuals and cables
T.V modulator and Commodore mouse
4096 colour graphics, 4 channel stereo sound
12 months warranty on all items
Full U.K specification machine

Bart vs the Space Mutants

The new 1 meg game



INCLUDING THESE NEW TITLES



This years biggest hit



AND THE PLANETEERS

AND OUR OWN EXTRAS PACK

Accessories

Mircoswitched joystick
Disk Library Case
10 Blank disks
High quality mouse mat
and dust cover

Five Game Pack

Turbo Outrun
Enduro Racer
Super Wonder Boy
Thunder Blade
Crackdown

A Top Title

Kick Off 2
1 Meg version
Voted European
Game Of The Year



**Total Package Price
Including VAT & Delivery**

Next Day Courier Delivery At £5.50 Extra

£399.99

**CALL
NOW**

Bart Pack 1

Amiga Cartoon Classics Pack as above plus
Philips CM8833H Colour Stereo Monitor
plus leads and
dust cover

£639.99

Bart Pack 2

Amiga and Monitor as in Bart Pack 1
Plus the STAR LC-200 Colour Printer
complete with
dustcover and
leads

£839.99

HOW TO ORDER

By Phone :

Call our credit card order line, and quote your credit card details to our helpful sales staff. We accept Access, Visa, Eurocard, Mastercard, AMEX and the new direct debit cards like Switch and Barclays Connect.

By Mail :

Simply write down the details of your order along with your name and address, then post it to us with a personal cheque, postal order, bankers draft or building society cheque made payable to, "Digicom Computer Services Ltd".

Personal cheques require time to clear before despatch

Prices and Specifications are subject to change without notice,
Goods are not sold on a trial basis. E&OE.

DIGICOM

(0908) 378008

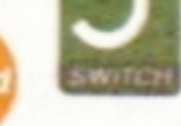
36-37 Wharfside
Fenny Stratford
Watling Street
Milton Keynes MK2 2AZ

Showroom open Mon-Sat 9.00am-5.30pm
(closed between 12.30-1.30 pm)

Wharfside is opposite the Bridge Pub on the A5 Watling Street

Digicom offers you !

- ☐ Free Catalogue with all orders
- ☐ 12 months guarantee period
- ☐ All product tested before despatch
- ☐ Regular newsletters and special offers
- ☐ Technical helpline
- ☐ 30 day replacement of faulty product
- ☐ Price or product match
- ☐ Computerised order system



**All
Major
Credit
Cards
Accepted**

Evesham Micros

PRICES INC. DELIVERY & VAT @ 17.5%

Express Courier Delivery :
(UK Mainland Only) £6.50 Extra

BUY WITH CONFIDENCE from one of the longest established companies in their field, with a reputation for good service and prices. We have invested heavily in a computer system to enable our Telesales staff to provide up-to-the-minute stock information, coupled with highly efficient order processing. Our fully equipped Workshop enables us to carry out almost any repair on our premises. We feel sure that you won't be disappointed if you choose Evesham Micros.

HOW TO ORDER.....



Call us now on



0386 765500



Lines open Monday - Saturday,
9.00am - 5.30pm



Send Cheque, Postal Order or
ACCESS/VISA card details to :

Evesham Micros Ltd
Unit 9, St Richards Rd.
Evesham, Worcs
WR11 6XJ



ACCESS / VISA
Cards Welcome



Government, Education & PLC orders welcome

Same day despatch whenever possible

Express Courier delivery (UK Mainland only) £6.50 extra

Please note that 5 working days must be allowed for
personal cheque clearance.

Mail Order Fax: **0386-765354**

RETAIL SHOWROOMS

Unit 9 St Richards Road, Evesham
Worcestershire WR11 6XJ

☎ 0386 765180

fax : 0386 765354

Open Mon-Sat., 9.00 - 5.30

5 Glisson Rd, Cambridge CB1 2HA

☎ 0223 323898

fax : 0223 322883

Open Mon-Fri, 9.30 - 6.00

and Sat., 9.00 - 5.30

Corporate Sales Dept. • IBM dealer

1762 Pershore Road, Cotteridge
Birmingham B30 3BH

☎ 021 458 4564

fax : 021 433 2325

Open Mon-Sat., 9.00 - 5.30

TECHNICAL
SUPPORT

☎ **0386-40303**

Monday to Friday, 10.00 - 5.30

**12 MONTHS WARRANTY
ON ALL PRODUCTS**

All details correct at time of going to press • All goods subject to availability

AMIGA 1500/2000 UPGRADES

HARD DRIVE / RAM UPGRADE BOARD KIT

Kits comprise of full size hard disk controller cards incorporating unpopulated SIMMS RAM expansion sockets for accommodating up to 8Mb RAM; PLUS high speed, fast access NEC SCSI hard disks.

40MB HARD DRIVE & INTERFACE / RAM CARD £ 349.00

100MB HARD DRIVE & INTERFACE / RAM CARD .. £ 499.00

PLEASE NOTE: These are unpopulated RAM sockets - Add £119.00 per 2Mb of RAM required.

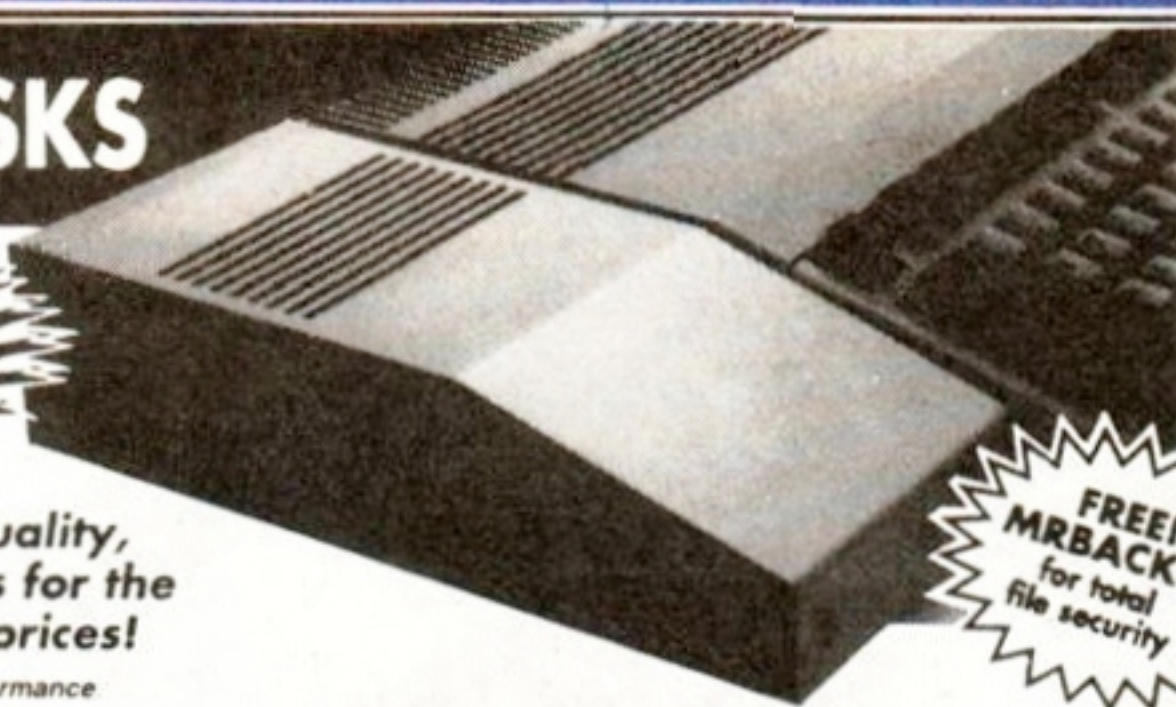
8Mb RAM Expansion Card with 2Mb Fitted
easily upgradeable to 4Mb, 6Mb or 8Mb £ 149.95

A500 HARD DISKS

**PRICE
BREAKTHROUGH!**

**AT LAST... the chance to buy Quality,
High Capacity Hard Disk Systems for the
Amiga 500 at realistically low prices!**

- NEC SCSI HARD DISK MECHANISMS for optimum performance
25ms Access Time & Autoparking
- Includes its own DEDICATED PSU CBM recommends against use of
Hard Disks without independent power supply
- QUIET.... latest technology drives run cool - no fan is needed!
- Option for up to 4MB additional easy RAM EXPANSION using 'SIMMS'
- GAME SWITCH allows Games to be loaded without disconnection
- Includes SCSI THROUGHPORT at rear for further expansion
- High quality metal casing, colour matched to the Amiga 500
- Includes 'MRBACKUP PRO' as well as Configuration/Format software



**FREE!
MRBACKUP**
for total
file security

40Mb MODEL ONLY £ 299

100Mb MODEL ONLY £ 449

2Mb RAM Version: ADD £80 • 4Mb RAM Version: ADD £160

3 1/2" EXTERNAL FLOPPY DRIVES

AMAZING LOW PRICE !

£51.99

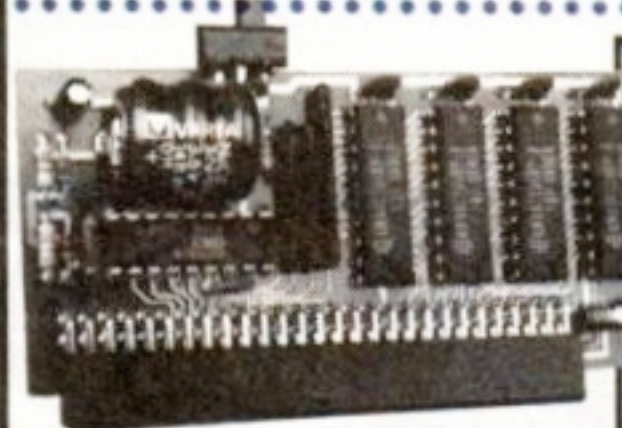
including VAT & delivery



- Very quiet
- Slimline design
- Suits any Amiga
- Cooling Vents
- Sleek, high quality metal casing
- Quality Citizen/Sony Drive Mechanism
- On / Off switch on rear of drive
- Full 880K Formatted Capacity
- Long reach connection cable

Also available:
5.25" External Drive
40/80 Track Switchable
Only £99.00 inc.VAT/delivery

AMIGA A500 SOLDERLESS RAM UPGRADES



**512K
RAM/CLOCK
UPGRADE**

**ONLY
£28.99**
inc. VAT and delivery

512K RAM Expansion
also available without
clock for only :

£24.99

- ☆ Direct replacement for the A501 expansion ☆ Convenient On / Off
Memory Switch ☆ Auto-recharging battery backed Real-Time Clock ☆
Compact Unit Size : Ultra-neat design ☆ Only 4 low power FASTRAMs

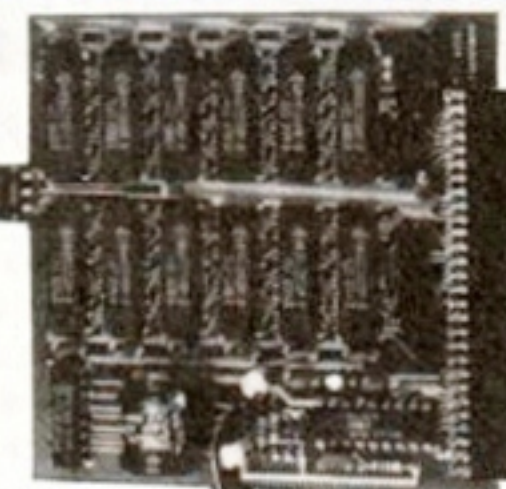
**UPGRADE
TO 2MB FOR
ONLY £79 !**

1.5MB RAM BOARD

Fully populated board increases total RAM in A500 to 2Mb ! ☆ Plugs
into trapdoor area, & connects to 'GARY' chip ☆ Includes battery-
backed real-time Clock ☆ Socketed RAM ICs on 512K / 1Mb Versions

Unpopulated RAM board with clock £ 34.95
RAM Board with 512K FASTRAM installed ... £ 54.95
RAM Board with 1Mb FASTRAM installed..... £ 69.95
RAM Board with 1.5Mb FASTRAM installed... £ 79.00

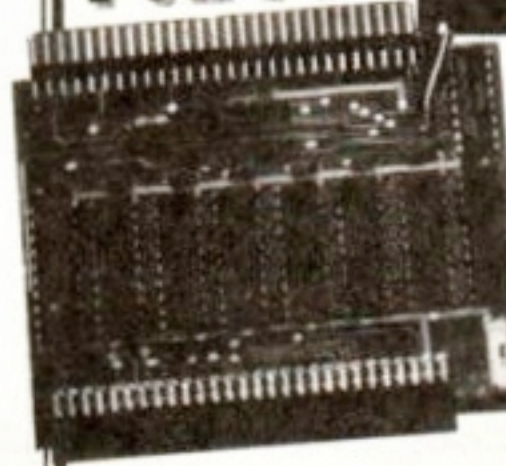
N.B.: The expansion board
requires Kickstart 1.3 to
operate -
Kickstart 1.3 upgrade
available from us for £29.95



NEW!

'MEGABOARD'

**Connects to your 512K RAM
upgrade to give 1.5MB**



With our MEGABOARD, you can further expand
your A500's memory to a total of 2Mb without
disposing of your existing 512K upgrade (must be
4 x RAM-chip type, or not exceeding 9cm in length).

**ONLY
£59.95**

MEGABOARD needs Kickstart 1.3
to operate (Kickstart 1.3 upgrade
available from us for £29.95).
Installation requires connection to
the GARY chip. Easy to follow
instructions provided.

ZY-FI amplified stereo speakers

REALISE THE TRUE SOUND POTENTIAL OF YOUR AMIGA WITH THIS PAIR OF FULL RANGE SPEAKERS!



Your Amiga produces fine quality hi-fi stereo sound. Enjoy quality stereo sound reproduction to the full with this specially designed, great new twin speaker system! Features reflex ported speaker design with 3 separate drivers in each unit and incorporates a built-in amplifier with adjustable volume control. Runs from PSU (supplied) or from batteries (not included). Speaker Dimensions 248x93x125mm (HxWxD)

ONLY £39.95

GOLDEN IMAGE HANDY SCANNER & TOUCH-UP



Outstanding quality, excellent value for money - this package includes a 100-400dpi scanner with either options, plus the amazingly powerful TOUCH-UP software package which drives the scanner directly. Scanner includes viewing window & backlight for accurate scans every time. Scan either line-art or grey images up to 400dpi. Many image enhancement & special effects available from within Touch-Up. A sensible investment for Desktop Publishing work.

INCREDIBLE VALUE! NEW LOW PRICE - ONLY £145.00

TRUEMOUSE



WE GUARANTEE that this is the smoothest, most responsive and accurate replacement mouse you can buy for the Amiga. Excellent performance, amazing low price!

£17.95 SATISFACTION GUARANTEED

GOLDEN IMAGE OPTICAL MOUSE Amiga/ST compatible - excellent travel+accuracy assured. **NEW LOW PRICE! £29.00**

NEW! ROCCEN GENLOCK



YOU WILL HAVE TO PAY AT LEAST TWICE AS MUCH MONEY to obtain a similar level of quality, function and sophistication offered by our new GENLOCK adapter, compatible to all Amigas! Special features include the ability to record graphics & animations on video recorders and overlay graphic and text onto video. Capable of smooth and stable fading and overlaying effects with special tuning knob.

ONLY £114.99

CBM A590 HARD DISK

Good quality Commodore 20Mb Hard Disk unit, including its own PSU and built-in cooling fan. Features sockets for up to 2Mb of on-board FASTRAM expansion (see below). 80ms Access time, with up to 2.4Mb/sec. transfer rate. Autoboots when used with Kickstart 1.3.

ONLY £279.00

CBM A590 UPGRADES

(RAM upgrades fitted free of charge when bought with A590)

512K RAM Upgrade	£ 29.95
1Mb RAM Upgrade	£ 59.95
2Mb RAM Upgrade	£ 99.95
NEC 40Mb SCSI Drive replacement mechanism	£ 199.00
NEC 100Mb SCSI Drive replacement mechanism	£ 349.00

A590 ADD-ON HARD DRIVES

A590 OWNERS! Expand your hard disk storage further with one of our add-on, externally cased SCSI Hard Drives, featuring 25ms autparking NEC mechanisms with separate power supply. Simply plugs into the socket provided on the rear of the A590 Hard Disk unit.

External 40Mb SCSI Drive cased with PSU to directly add-on to the Commodore A590	£ 299.00
External 100Mb SCSI Drive cased with PSU	£ 449.00

PHILIPS 15" TV/MONITOR



With its dedicated monitor input, this model combines the advantages of a high quality medium resolution colour monitor with the convenience of remote control Teletext TV - at an excellent low price! NEW Version features dark glass screen for improved contrast, plus full range 3-way speaker sound output.

£269.00 including VAT, delivery & cable

Philips CM8833 Mk.II including cable £ 239.00

AMIGA SPECIAL DEALS

AMIGA 500 COMPUTER BASE PACK

Features a Genuine UK version 512K Commodore Amiga 500 computer with 1Mb Internal Drive, TV Modulator, Mouse, Power Supply, Kickstart 1.3, etc.

AMIGA 500 BASE PACKAGE ONLY £ 307.49

A500 PACK AS ABOVE, WITH 512K RAM/CLOCK FITTED ONLY £ 333.99

A500 PACK WITH EXTERNAL 3 1/2" DRIVE ONLY £ 357.49

A500 PACK WITH EXTERNAL 3 1/2" DRIVE AND 512K RAM/CLOCK UPGRADE FITTED ONLY £ 383.99

N.B. Does NOT include extra software included with other packages.

TRACKBALL



Excellent new high performance trackball, directly compatible to any Amiga or Atari ST. Operates from the mouse or joystick port. Super-smooth, accurate and versatile - you probably won't want to use a mouse again after using this Trackball! Total one-handed control. Top quality construction and opto-mechanical design, delivering high speed and accuracy every time. No driver software needed!

ONLY £29.95

VIRUS PROTECTOR

BANISH VIRUS PROBLEMS!

Our compact Virus Protector fits easily to the Port of the last disk drive in your Amiga system, protecting all internal and external drives from boot block viruses. Incorporates a switch to enable or disable the protection facility.

ONLY £9.95

REPLACEMENT A500 PSU



Genuine Commodore Amiga A500 type replacement Power Supply Unit. Good quality 'switch mode' type. Super low price!

ONLY £39.95

MIDI INTERFACE

Our fully compatible, high quality MIDI interface connects directly with the Amiga serial port and provides IN, OUT & THRU ports for good flexibility. Features LED indicators on each port for diagnostic purposes. Superb compact design.

ONLY £19.95

STEREO SOUND SAMPLER

Offering full compatibility with almost any Amiga audio digitiser package, our Sound Sampler features excellent circuitry, yielding professional results. The main A/D converter gives a digitising resolution of up to 50KHz, with a fast slew rate. Two phono sockets are provided for stereo line input, plus an option for microphone. Adjustable gain is achieved with built-in control knob. Complete with public domain disk containing sound sampling applications / utilities.

ONLY £29.95

AMIGA 500 INTERNAL 3.5" REPLACEMENT DRIVE
Fully compatible. Kit includes full fitting instructions £ 41.99

NEW! COMMODORE C.D.T.V. including 'Lemmings' & 'Hutchinsons Encyclopaedia' Starter Compact Disks £ 579.00

VIDI-Amiga video digitiser package inc. VIDI-Chrome	£ 110.00
VIDI-Chrome Amiga colour frame generation kit from B&W Images	£ 16.95
VIDI-RGB colour frame generation kit from B&W Images	£ 64.95
EMR VIDEOPILOT V320 Sophisticated Video Editing System	£ 989.00
KCS Powerboard Hardware PC Emulator with its own 1Mb of RAM on-board. 512K useable in Amiga mode	£ 229.99
Kickstart 1.3 Upgrade	£ 29.95
Amiga 500 Dust Cover	£ 4.95

SOFTWARE

Digital Wordworth	£ 119.00	Deluxe Video 3	£ 84.95
Kind Words 2	£ 37.95	Music-X 1.1	£ 65.00
Protext V5	£ 119.95	AMOS	£ 37.50
Digital Home Accounts	£ 23.95	HiSoft Lattice C	£ 199.00
Deluxe Paint 4	£ POA	GFA BASIC V3	£ 39.95
		GFA BASIC Compiler	£ 34.95
		Devpac 2.15	£ 44.95
		Disney Animation Studio	£ 69.95

LOOK WHAT ELSE YOU GET WHEN YOU BUY AN AMIGA FEATURE PACK FROM **Evesham Micros**

THESE FABULOUS GAMES:

Tracksuit Manager 90 • Subbuteo • Asterix • Block Alanche • Jungle Book • Treasure Trap • DiskMan • Battle Squadron • Diet Riot • Tank Battle • Nigel Mansell • Lost N Maze
PLUS! A wordprocessor and spreadsheet

NEW! AMIGA 500 CARTOON CLASSICS PACK

Includes Amiga 500 with 1Mb RAM, plus 1Mb Drive, TV modulator, 'LEMMINGS', 'CAPTAIN PLANET', 'BART SIMPSON vs THE SPACE MUTANTS', 'Deluxe Paint III'.
A500 1MB CARTOON CLASSICS PACKAGE £ 369.99
A500 Cartoon Classics PLUS 3 1/2" External Drive £ 419.99

AMIGA 500 SCREEN GEMS PACK

Includes Amiga 500 with 1Mb RAM, plus 1Mb Drive, TV modulator, 'Night Breed', 'The Beast 2', 'Back to the Future 2', 'Days of Thunder', 'Deluxe Paint II'.
A500 1MB SCREEN GEMS PACKAGE £ 369.99
A500 Screen Gems Package PLUS 3 1/2" External Drive .. £ 419.99

AMIGA 500 CLASS OF THE 90'S PACK

A500 plus A501 512K RAM Upgrade, TV Modulator, 8 s/ware titles, 10 Disks, mouse mat & more...
CLASS OF THE 90's Package £ 499.00
Class of the 90's Pack plus 3 1/2" Drive £ 549.00

AMIGA 1500 STARTER PACK

Includes A1500 computer (1Mb RAM, 2 x 3 1/2" Drives, 8 expansion slots), Commodore Hi-Resolution Colour Monitor plus Software including: 'Deluxe Paint III', 'Battle Chess', 'Sam City' and 'The Works' (business software).
A1500 STARTER PACKAGE £ 949.00

STAR LC10 SPECIAL OFFER

BEST EVER SELLING 9-PIN PRINTER NOW AVAILABLE AT AN EXCEPTIONALLY LOW PRICE!

Providing unsurpassed paper handling, four excellent NLQ fonts and a respectable print speed of 144/36 cps, the phenomenally successful LC10 represents terrific value at this price.

INCLUDES CONNECTION CABLE & 12 MONTHS ON-SITE MAINTENANCE

ONLY £129.95

PRINTERS

Prices include VAT, delivery and cable

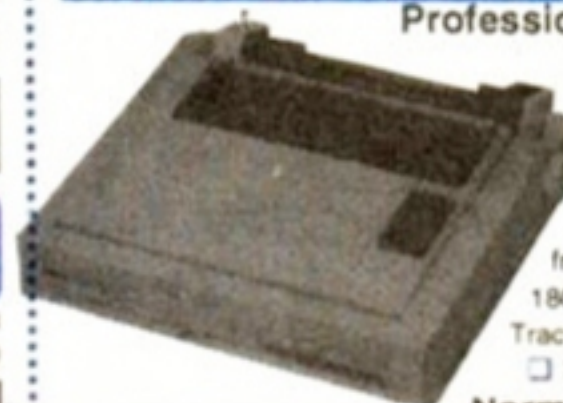
Evesham Micros SPECIAL OFFER!

All STAR Printers include 12 months On-Site Maintenance

Star LC 200 9-Pin Colour, 4 fonts, 180/45cps	£ 209.00
NEW! STAR LC200 fast 180/45cps super 9-pin, excellent value	£ 159.99
Star LC 24-10 24-Pin, 4 fonts, 180/60cps	£ 209.00
Star LC 24-200 24-Pin, 5 fonts, 200/67cps	£ 249.00
Star LC 24-200C 7 colour version of above	£ 289.00
Automatic Sheet Feeder for above printers (pls state model)	£ 64.95
SPECIAL OFFER! STAR XB24-10 WITH COLOUR UPGRADE & AUTOMATIC CUT SHEET FEEDER - While Stocks Last	£ 359.00
NEW! Star XB24-200 Colour 24-pin, 80 columns	£ 399.99
Olivetti JP-150 Inkjet first class quality - exceptional value	£ 249.99
Olivetti JP-350 Inkjet excellent high speed 300dpi printer	£ 349.99

Citizen PRODOT-24 COLOUR

Professional 24-Pin Colour Printer - at a budget price!



☐ Highly versatile letter quality printer ☐ 200 cps output in draft, 66 cps in LQ mode (5 true letter quality fonts) ☐ Full control from front panel ☐ Graphics res 360 x 180dpi ☐ Parallel and Serial interfaces. Tractor & Single Sheet Feed as standard ☐ 2 Year Manufacturers Warranty
Normal RRP: £ 746.35 inc.VAT

ONLY £269.00 including VAT, delivery and cable

Olivetti DM124C COLOUR

Professional 24-Pin Colour Printer with full 12 Months On-Site Warranty Cover!



☐ 200 cps in draft, 50 cps in LQ mode ☐ 7 Colour output, Graphics res. 360 x 180dpi ☐ Huge 40k buffer ☐ Tractor & Single Sheet Feed ☐ 12 MONTHS ON-SITE WARRANTY
DM124C Normal RRP: £ 389.95 inc.VAT

ONLY £269.00 including VAT, delivery and cable

3 1/2" Track Display Drive

High quality double-sided 3.5" floppy drive offering the full 880K formatted capacity per 3.5" disk. Features a special LED display which accurately shows the current track being accessed during any disk drive activity. **NEW LOW PRICE!**



ONLY £64.95



star

Printers

Star LC24-200	Star LC24-200 Colour	Star XB/24-10 Colour
£244.99	£299.99	£339.99
24 Pin printer	24 Pin printer	24 Pin printer
222 cps	222 cps	48-pin emulation technique
5 Resident LQ fonts	5 Resident LQ fonts	240 cps
Accepts font cartridges	Accepts font cartridges	4 SLQ 25 LQ resident fonts
Bottom feed	Bottom feed	27K buffer expandable to 187K
Push or pull tractor feed	Push or pull tractor feed	Colour upgrade included
Paper parking	Paper parking	Advanced paper parking
Star LC24/10	£199.99	All Star Printers carry 12 months on site warranty (Mainland UK). All printers include IBM Centronics cable. Phone for ribbons, paper and printer stands.
Star LC-10	£139.99	
Star LC-200 Colour	£209.99	
Star NB/24-10 ex-demo	£200	
Printer stands from	£11.99	

Please Read: Terms of Sale.

We are the longest established Atari dealer in the UK. We have developed an extensive customer service policy which means that we test all Hardware/Software prior to despatch to ensure that goods arrive in working order. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup. This isn't just our opinion, we were voted "Best Dealer 1989" by the readers of ST World magazine, not for "the number of boxes shifted", but for quality service.

On Site Warranty: We have recently extended our backup programme by offering on site warranty as an option on all ST's. We already offer this service on All Star printers and Philips monitors listed.

All prices are correct at copy date 19/08/91, and are subject to change without prior notice. All prices are accurate while stocks last. Phone for up to date prices. All prices include VAT, there are no hidden extras (WYSIWYG). Delivery (in Mainland UK) is free, on orders over £100 (add £10 for next day courier delivery). All prices available on Mail Order. Shop prices may differ.

RAM Upgrades

512K Board	£26.99
With clock	£29.99
1.5Mb Upgrade with 512K installed	£55.99
1.5Mb Upgrade with 1Mb installed	£72.99
1.5Mb Upgrade with 1.5Mb installed	£88.99
The Zydec 1.5Mb upgrade board requires a connection to the Garry chip and Kickstart 1.3 installed. Includes clock.	



Quality Disks

Quantity	Bulk Sony or Kao		Sony Brand Boxed in 10's
	Loose	Boxed	
10	£ 4.99	£ 5.99	£ 8.99
40	£ 19.20	£ 25.20	£ 32.49
100	£ 44.99	£ 53.99	£ 79.99
150	£ 59.99	£ 76.99	£ 118.49

All disks carry an unconditional lifetime guarantee. Please add 80p P&P for each 10 disks or £3.00 for 100 and above.

FAX/Modem

Amiga Packs

Use your ST or Amiga to send faxes. Fully featured modem accesses bulletin boards/commercial systems.

- Fully Hayes compatible.
- Auto dial/answer
- 300/1200/2400 Baud
- For ST or Amiga
- Cannot receive faxes. Not BT approved.

£224.99

A500 computer £299.99

1Mb Screen Gems Pack
£369.99

1Mb Cartoon Classics
Pack £369.99

Any of above packs + Tenstar games,
joystick, mouse mat add £30

Monitors & TV's

Philips 8833 MK II Colour, Stereo monitor £ 249.99

Cmdr 1084S Colour monitor * limited offer * £ 269.99

Philips 15" FST CUBE TV £ 269.99

The Philips 15" FST TV includes: remote control, Scart input, 60 tuner presets, sleep timer and Fastext. All displays include Scart cable. Deduct £10 from Monitors only, if bought with computer. The Philips 8833 comes with full 12 months on site warranty.

CDTV £599.99

Commodore Dynamic Total Vision

Titles in stock

World Vists, Electronic cook book, Advanced military systems, Battle storm, Classic board games, All dogs go to heaven, Fun school 3 (under 5's), A bun for berney, Illustrated Holy Bible.

CDTV In stock now

includes Welcome disk, Encyclopedia and voucher for Lemmings.
Phone for further details.

Roctec drives

- ★ Data enable/disable switch
- ★ Daisy chain "through" connector
- ★ Low power consumption

Now Only £54.99

Please add £3 P&P

A4 Scanner

- ★ 200 DPI scanner, thermal printer, and photocopier.
- ★ Upto 16 grey scales or B/W mode.
- ★ Compatible with Amiga and ST.

£399.99 while stocks last

Hard Drives

GVP II A500 Hard drives include injection moulded styling, internal RAM expansion to 8Mb via SIMM boards, Capacities from 52Mb, 3.5" 11ms Quantum mechanism, internal Fan, Game switch and mini slot for future expansion.

GVP 52Mb	£549.99	GVP 105Mb	£669.99
A590	£299.99	Phone for latest prices	

Goldstar PC's

All systems include 12 Mths on site maintenance and DOS 4.01

286 -12MHz		Mono VGA	
1Mb RAM supplied, upgradeable to 4Mb, 80287 Co-Processor socket, 40Mb 24ms Hard drive, 2x AT and 1x XT free expansion slots, Mouse, GEM 3, 1st Word, choice of 1x 5.25" floppy or 1x 3.5" floppy		£734.99	
386 _{xx} -16MHz		Colour VGA	
2Mb RAM supplied, upgradeable to 8Mb, 80387sx Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, choice of 1x 5.25" floppy or 1x 3.5" floppy		£839.99	
386 _{xx} -20MHz		Colour S-VGA	
2Mb RAM supplied, upgradeable to 10Mb, 80387 Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, 1x 5.25" floppy and 1x 3.5" floppy		£1049.99	
386 _{xx} -25MHz		Colour VGA	
4Mb RAM supplied, upgradeable to 16Mb, 32K Fast cache RAM, 80387 Co-Processor socket, 40Mb 24ms Hard drive, 4x AT and 1x XT free expansion slots, Mouse, 1x 5.25" floppy and 1x 3.5" floppy		£1159.99	
		Colour S-VGA	
		£1259.99	
		Mono VGA	
		£1259.99	
		Colour VGA	
		£1369.99	
		Colour S-VGA	
		£1469.99	
		Mono VGA	
		£1789.99	
		Colour VGA	
		£1889.99	
		Colour S-VGA	
		£1999.99	



How to Pay

You can phone your Access or Visa card details or send a cheque/postal orders made payable to Ladbroke Computing International. Please allow sufficient clearance time for cheques.



(0772) 203166 Fax 561071

Shop & Mail order premises: 33 Ormskirk Road, Preston, Lancashire, PR1 2QP Open Monday to Saturday 9:30am to 5:00pm. Phones answered from 9:00am. Dealer enquiries welcome. Ladbroke Computing International is a trading name of Ladbroke Computing Limited. All trade marks recognised.

continued from page 52

A>PIP
*

then you'll type something like:

LST:=B:example

which would copy the drive B: file 'example' to CP/M's LST device (which in turn will be redirecting the data to the Spectravideo serial port). It is at this time that you should see visible evidence of file transfer appear on the Amiga's screen.

Incidentally, before all this you can check the serial link by hitting [Control]-P (CP/M's echo to printer command) on your Spectravideo. From that point on, everything you type at the keyboard should appear on the Amiga screen. If the serial ports are properly configured but you don't seem to be reading anything then about the only thing that can be wrong is that the connections on pins 2 and 3 (the data transmit/receive lines) are the wrong way round. The solution is to just swap those two wires around at one end of the lead and try again.

You often get minor snags, but with all this comms magic a bit of experimentation usually saves the day. CP/M should, for instance, provide an end-of-file marker but if things appear to 'hang' at the end of the transfer, then the keyboard sequence [Ctrl]-P [Ctrl]-Z. [Ctrl]-P (which will echo a CP/M end-of-file character to the Amiga) should result in the AmigaBasic program giving its OK prompt. If all else fails, stop the AmigaBasic program and type 'CLOSE' to finish the Amiga side of the transfer.

Well, that's the general idea of the hack approach. With a more sophisticated lead that supported proper handshaking you would, of course, be able to increase the transmission rate, and here commercial CP/M comms programs such as *BSTAM* would be useful.

Text/data files are easy to handle in this way, and so are Basic programs, but to be of use these

latter files must be available in ASCII format. It's easily done – you just save a copy of the program using the 'A' option like this...

SAVE "TESTPROGRAM",A

How much use you'll be able to make of the files you transfer depends on whether the files are going to make sense to the Amiga programs that use them – spreadsheets, databases and word-processor file formats vary from program to program and I'm not familiar with all the programs you mention. Many CP/M word processors used *WordStar*'s trick of setting bit 7 of characters to indicate soft spaces. If *SuperWriter* does this it might be best to clear these bits from the file during the PIP transfer. There's a special PIP [z] command option available for this.

Once you've got the serial link sorted out, check your existing Spectravideo software manuals looking for details of file formats, program options like 'export' and so on, which may allow some files to be output in a less program-specific form. Then send the new files over your serial link and try them out. **PAO**

UPGRADING RAM



I own an Amiga A500 with two external drives and 1.5Mb Zytec RAM upgrade board. I am thinking of buying an A590 hard drive. Is it possible to upgrade the A590 to its 2Mb RAM facility and still use my existing 1.5Mb upgrade? Can you also tell me how much it costs to add this 2Mb RAM, and if it is difficult to do?

**Brian Crawley
Retford
Notts**

The 1.5Mb expansion fits inside the trap-door of the A500, whereas the A590 hard drive is designed to fit easily to one side, so there are no physical problems fitting the equipment. I have spoken to Evesham Micros, which manufactures the expansion board in

question, and I am assured that two will work in harmony, including the extra 2Mb RAM upgrade. The cost of the 2Mb RAM is around £100. **MD**

DELUXE MUSIC ENTRY



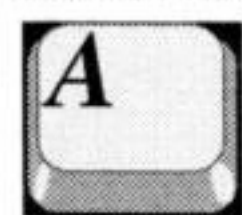
I have recently purchased the Electronic Arts package, *Deluxe Music Construction Kit*. It's a very good package but I would like help with some problems I have with it. I want to put music on to the score and can do so, but when I am composing music as it comes into my head I cannot enter it past the first measure (bar). Shouldn't it automatically jump to the next measure when the first is full? I find it very frustrating because by the time I have worked out what to do, the music has gone from my head.

**Ian Dickie
Strathclyde
Scotland**

The *Deluxe Music Construction Kit* has several methods of entering notes. If you enter them from a MIDI keyboard, the bars scroll by, filling up as you play them. If you click on 'Insert Notes in Score' and then 'play' them in from the on-screen keyboard, then although the display does not scroll the notes are still entered and when you play back there they are, scrolling away before your eyes. Obviously, when you enter from the on-screen keyboard the notes will take their length and note value from that set in the program's note palette.

If, however, you drag them from the note palette directly, they behave exactly as you say; it would appear that you can't get past the first bar. The trick is to resize the score window so that it is at its maximum size. The rest of the score is actually below the first line you are working on so when you have filled the first line, don't carry on inserting notes (they won't sound on playback anyway). What you do is use the right-hand scroll bar of this window to pull yourself down the score; if you like, you are moving to a clean sheet of paper. In this way you will have an unlimited number of bars to enter notes in: the program realises that since you have pulled the score down you want to enter more notes. **JB**

CRASHING AMIGA



I seem to be in a spot of bother with my 1Mb Amiga 500. When I try to load various pieces of public domain software, mostly utilities, I find that the computer crashes and says it has a "Software Error - Guru Meditation". I took down the numbers. Please could you help me find out what the

problem is, because it even crashes when I'm playing my full price games. The disks I used have not got any viruses on them, so this has left me baffled.

**Anthony Sargent
Crawley
West Sussex**

I'd be lying if I said I definitely knew the answer to your problem. The Amiga can crash for many different reasons. It could be that you have got a virus on your disks, but a newer one that your virus checker can't identify. I doubt this, though, because they would not cause the machine to crash when using most full-price games. I strongly suspect a hardware problem with either your machine or, more likely, the 512K RAM expansion in your trapdoor. Try removing the expansion and see if the machine crashes without it. **JR**

LEARNING ASSEMBLER



I will be buying the Devpac 2 assembler soon, but do not know which book to buy. It has got to have simple pages which are easy to understand, not filled with jargon. Can you help?

**J V Smith
Prettygate
Colchester**

Unfortunately, learning machine code (indeed, most languages) on the Amiga is no simple task. Most books tend to break the process down into two parts: learning machine code and learning how to program the Amiga. Worse still, to properly learn how to program the Amiga you will eventually need the official Commodore reference manuals. There are four of them: *Hardware Reference Manual* ISBN 0 201 18157 6, *Includes and Autodocs* ISBN 0 201 18177 0, *Libraries and Devices* ISBN 0 201 18177 0 (all published by Addison Wesley), and the *AmigaDOS Manual* ISBN 0 553 35403 5 2495 (published by Bantam). They cost £20-30 each, and as they are written for programmers, they are full of jargon. The AmigaDOS guide has just been released in its third edition, and now caters for AmigaDOS versions up to 2.04. I'd recommend *Amiga Machine Language Programming* ISBN 1 5575502 5, published by Abacus for £14.95; it has got all you need to start off with. **JR**

PRINTING PICS ON A PC



I have an Amiga 500 and would like prints from *Deluxe Paint III* IFF files and Notepad text files. I do not own a printer but

JARGON BUSTING

Assembler – A program which converts an assembly language program written in words (well, almost) into the machine code numbers that the Amiga's 68000 processor understands. Writing programs in assembly language ensures that the best possible speed and memory efficiency is gained from the machine – but it's far harder than writing in, say, Basic.

MIDI – Musical Instrument Digital Interface is a standard devised by electronic instrument manufacturers, allowing a number of synthesizers to be controlled by a single keyboard, sequencer or computer.

continued on page 58

continued from page 57

I have access to an MS-DOS compatible PC with a dot-matrix printer. How can I convert an AmigaDOS disk with the above files on it to load and print on a PC?
Anon.

The first thing to note is that picture files from the two machines are incompatible. The standard format for the Amiga is IFF, whereas the IBM standard format is PCX.

Professionally written packages exist to convert from one format to the other, although I would suggest you approach your public domain library to purchase *IFF2PCX* for the Amiga, which is a shareware program. This is a brand new application, and at the time of going to press no major PD houses stock it, but both Amiganuts and Softville intend to do so. You can, of course, contact the author direct: John Shaw, 32 Lonsdale Drive, Toton, Nottingham NG9 6LS.

IFF2PCX will allow you to convert the file to IBM format, but you will also have to invest a disk transfer utilities so that you can transfer this file onto an IBM formatted disk. There is a program in the public domain called *MessyDOS* (Fish Disk 382) which should transfer the file adequately. **MD**

DOTTY SCREEN



I have had a problem with my Amiga for nearly three years. About a year after purchasing the machine, the screen started to flash every time I hit a key, and pixels began to appear on the screen. I reset the machine to be greeted by a greatly corrupted disk prompt. When I tried to reboot, the drive would either continually spin or just spin a bit and then stop. Because it was an intermittent fault it was taken to the service centre three times before they discovered and cured it. They could not say what had been done. It has now started again.

Also, I have a Star LC10 colour printer. Whenever I print graphics from *Deluxe Paint*, they come out covered in lines. It appears that one line of print is a fraction too close to the one above it. I have tried all the settings in Preferences, including the custom page, but none make any difference. Can you help?

Don Homer
Halesowen
West Midlands

This wierd effect of random dots appearing all over the screen is simple to diagnose in general, but it

is not always easy to track down the specific cause. The problem is simple, either the RAM chips are faulty or they are not being refreshed. DRAMs used in many computers need to be refreshed every couple of micro-seconds so the data they contain is not lost. When bits drop out because something has gone wrong, the result tends to manifest itself as random crashes and/or bits of garbage appearing like holes all over the screen.

My advice would be to first remove any RAM expansions you may have and see if that cures the problem. For instance, a faulty A501 clone could give rise to this type of fault. Failing that, get the machine checked over by an approved Commodore repair centre – and insist they repair it.

The lines you're seeing on graphics dumps are called banding. This effect is typical of almost all dot-matrix printers and is almost impossible to overcome. It is caused a small amount of play in the the feed mechanism. The best results can usually be obtained by using friction-fed as opposed to tractor-fed paper. Other than that, you'll just have to put up with this endemic problem – sorry. **MS**

FINDING THE TIME



Amiga files have a datestamp on them consisting of the number of days since

January 1st 1978. Is there a library routine which will convert to a more standard date (DD/MM/YY, YY/MM/DD and so on) to save me writing one? I am sure that there must be such a routine, since several commands such as LIST and DATE must do the conversion.

Alan Smith
Norwich

You're right... there ought to be one

```
AmigaShell
1.SYS:> list devs:
Directory "devs:" on Friday 05-Jul-91
.info                16 ----rwd 25-Mar-91 10:46:10
modem0.device        10456 ----rwd 04-Jun-91 14:25:08
serial.device        5292 ----rw-d 13-Mar-91 09:54:37
keymaps              Dir ----rwd 13-Mar-91 09:57:10
parallel.device      1812 ----rw-d 13-Mar-91 09:54:41
mountlist            2823 ----rwd 13-Mar-91 09:54:42
clipboard.device     6372 ----rw-d 13-Mar-91 09:54:44
printer.device       26964 ----rw-d 13-Mar-91 09:54:48
narrator.device      23280 ----rw-d 13-Mar-91 09:54:51
printers             Dir ----rwd 13-Mar-91 09:57:46
nfn.device           5584 ----rwd 13-Mar-91 09:54:53
clipboards           Dir ----rwd 13-Mar-91 09:54:54
randrive.device      2128 ----rw-d 13-Mar-91 09:54:55
system-configuration 232 ----rw-d 26-Jun-91 17:25:07
MountList.MSDOS      1912 ----rwd 13-Mar-91 09:54:58
12 files - 3 directories - 191 blocks used
1.SYS:>
```

Just how does the Amiga translate its dates into a sensible format...?

JARGON BUSTING

IFF – Interchangeable file format is a means by which data from different graphics or sound sampling programs are saved in a compatible way. It allows data to be exchanged between programs very easily and avoids the situation on, say, the PC, where dozens of different graphics packages each save data in incompatible formats.

ILBM – Interleaved bitmap is the IFF sub-format in which graphics images are stored.

but, despite being an avid reader of both the *ROM Kernel Manuals*, the *AmigaDOS Manual* and many other Amiga technical publications, I've not come across any mention of any such beast. If it does exist it certainly isn't documented in the obvious places.

Despite this, if you are programming in C you haven't actually got a problem because both Manx's *Aztec C* and *SAS C* support a number of time functions. These include the standard ANSI time functions *ctime()* and *gmtime()* which, with possibly some minor adjustment for the zero date reference point, will do the conversions you need. I don't know, but I suppose that it is just possible that LIST and DATE were either written in C anyway or that the appropriate routines were 'borrowed' from a compiler library. **PAO**

SAVING FROM SCRIBBLE



I have the *Scribble* word processor system and an unexpanded A500. I have managed

to save information to the *Scribble* disk, but am not able to save it to another disk for storage and subsequent recovery. It seems so basic, but can you help?

W Heys
Banstead
Surrey

Yes, the answer is as easy as you suspect. Select 'Save as' from the menu but when the requester appears, click on the box after the word 'Directory:' and clear it by typing [Amiga] X (that is, pressing the [Amiga] key and the X key at the same time). Then type in the name of the new disk that you wish to save on to, either DF0: for the first drive or DF1: for a second drive, or simply give the name of the disk, for example 'MyDisk:' – and don't forget the colon at the end.

Insert the disk you now wish to save to; if you have used the latter method then a requester will appear to prompt you to do this. Then give the file a name, press the [Return] key or select 'Save'. Your new disk will now have your document saved on to it, and subsequent documents will be saved to this disk. **MD**

BECOMING FAMOUS



If I produced graphical animations on disk for the public domain, how will I get them into a public domain library?

Andrew Marshall

Simple, Andrew: just send your disk to any one or several of the PD houses. Include an SAE for the disk's return should the PD house decide that it doesn't want it, and also a short covering letter explaining that all the work on the disk is your own. It might also be an idea to include a short doc file on the disk, describing your good self and your animation. Instead of mailing it, you could compact the whole lot using one of the popular PD archiving programs and upload the file to a bulletin board or two. **CR**

GRAPHICS CONVERSIONS




I am looking for a program in the public domain which will either show GIF files or which will convert GIF files to IFF ILBM. Can you help?

D Evans
Ilford
Essex

There are a number of graphics file conversion programs in the public

domain, such as *IFF2GIF* (Amiganuts Disk 793) but the preferred way to do this sort of thing in my book is *Art Department* (£69.95) or *Art Department Professional* (£163.43) by ASDG, distributed in this country by HB Marketing (☎ 0753 686000) and Silica Shop (☎ 081-390 1111). These programs convert pretty much anything to anything, and the files are preserved in their original aspect ratios, which you can't do using the PD programs. The big drawback with the PD programs is that they are NTSC, and so only process 200 lines. As most GIF files are converted from 350 line VGA or EGA images, you only get part of the picture. **PS**

'MALLOC' PROBLEM

 When using malloc() I made the following error. I typed something like the following:

```
if(!(IPPPtr=(struct IntuiPrint *)malloc(sizeof(IntuiPrint)))) return(NULL);
```

The error is a typo, with the word *IntuiPrint* being typed instead of *IntuiPrint*. Now malloc returned a NULL because there was no such structure as *IntuiPrint*, and the program caught the NULL and flagged an error. But the compiler failed to warn me at compile time that I was trying to allocate memory to a structure it had never heard of. Would you expect the compiler to do this?

Also, am I right in assuming that if I use the 'malloc' statement within a function, typically to allocate memory for a structure, then any values I stick in it will hold good and can be accessed from other functions provided I have passed back a pointer to the structure? In other words, is using malloc to make space for variables effectively equivalent to making global variables, in the sense that the values are not destroyed when

the program exits from the function involved?

Alun Evans
Ynysforgan
Swansea

The short answer to the first question is yes and no. In theory all such errors should be caught by the compiler and this particular slip, namely the use of an undefined structure identifier, is certainly easily caught by the current Lattice and SAS compilers. In general, however, it is not that uncommon to find that errors like this do get missed by compilers, especially when they are parsing fairly deeply nested expressions. This might have been a problem with version 3 of Lattice C, but since I no longer have that version I'm not able to check.

Now for your malloc() query. Once you've used malloc() to allocate memory, that memory is yours, and remains allocated until you choose to give it back to the system by using a corresponding 'free()' call. Consequently, whatever data you place into that memory space will also remain there until either you alter it or explicitly free the memory.

This, thank goodness, is *not* the same as making an equivalent global declaration, and even though the data is there it does not necessarily mean that it can be accessed. The bottom line is this: the scope, ie the visibility, of your malloc() data depends essentially on the visibility of the pointer used to access the memory block. If the pointer used to store the address of the allocated memory block is declared as a global then the allocation becomes effectively global. If the declaration was local then the visibility of the data will be restricted as per the usual rules for local variables.

In the following fragment of code, the variable *g_intuitext_p*, because it is declared outside of main(), can be accessed from anywhere in the program – even from within other functions:

```
struct IntuiText
*g_intuitext_p;
main()
{
    if (g_intuitext_p=malloc
    (sizeof(struct IntuiText)))
    {
        /* allocation successful
        and the g_intuitext_p pointer
        can be used anywhere within
        the program as a global
        variable. It can therefore be
        used by the following
        function... */
        SomeFunction();
        free(g_intuitext_p);
    }
}
```

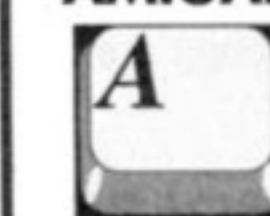
```
void SomeFunction(void)
{
    /* this function can use the
    malloc() data associated with
    g_intuitext_p. In this sense
    the data is global */
}
```

If, however, the pointer declaration was local, then the pointer – and therefore its associated memory block – would only be visible within the function that declared it. If another routine wished to use that data you'd need to explicitly pass a copy of the pointer (or its address) as a parameter, like this:

```
main()
{
    struct IntuiText
    *intuitext_p; /* local
    variable */
    if (intuitext_p=malloc
    (sizeof(struct IntuiText)))
    {
        /* allocation successful
        but the intuitext_p pointer
        will not be known to
        functions outside of main()
        */
        SomeFunction(intuitext_p);
        /* pointer has to be
        explicitly passed before
        function can use the malloc()
        data */
        free(intuitext_p);
    }
}
```

In general, then, the scope and visibility of the malloc()-created data blocks will depend solely on the scope and visibility of the associated pointer. **PAO**

AMIGADOS TROUBLES

 Following the instructions in the AmigaDOS tutorial if issue two, I ran into the following problems:
Having typed the relevant command for formatting, the reply 'Drive not found' keeps appearing. Also, having typed the command for

I SEE NO TIPS

Don't need our help? Reckon you can do a better job of giving advice and tips? Well, do it! As well as asking for advice, we want you to give it, too. If you have discovered a useful tip for any program, hardware, language or whatever, send it to us and if it's any good we will use it on the Amiga Answers pages and bung you £5 in return. If you think we have got an answer wrong, or haven't given the full picture, give us what you think is the right answer – we might even cough up some cash for that too. So don't just sit there, get tipping and help out your fellow Amiga owners. Send your cunning tips to: Amiga Tips, Amiga Shopper, 30 Monmouth Street, Bath BA1 2BW.

disk copying, the reply 'Error on SOURCE disk. Cannot open AmigaDOS device' keeps appearing.

The above problems also occur when the original Workbench disk is in the drive. Is my disk corrupt? If so, is there anything I can do to overcome these problems?

R G Alldis
Southampton
Hants

The answer to this one is really very simple: you are typing the command's synopsis, not the command. Take the command 'FORMAT', for example: it has a synopsis of FORMAT <drive> NAME <name> [NOICONS] [QUICK] [FFSINOFFS]. This means that you replace the word <drive> with the drive number you want to format, and replace <name> with the name of the disk. In other word the command line you enter looks like this:

```
format drive df0: name empty
```

You have been entering the synopsis directly like this:

```
format drive <drive> name
<name>
```

At which point AmigaDOS looks for a drive called <drive>, decides there isn't one and reports an error. Much the same applies to the DISKCOPY – try it for yourself. Any experts who find this highly amusing should try thinking back – not so funny now, is

continued on page 60

JARGON BUSTING

Compiler – A program providing a means of translating another program, written in a high-level language (such as C or Basic) into machine code which is understandable by the computer.

Malloc – A function in the C programming language which requests a chunk of contiguous memory from Exec. If the amount of memory requested is available, the function returns a pointer to the beginning of this memory. If not, the function returns NULL.

Parse – The second stage that a compiler goes through when translating a high-level program. It checks that the components of its input (program statements and so forth) are consistent with its pre-defined set of syntactical rules. In other words, it checks for errors like uneven numbers of right and left brackets.

continued from page 59

it? Don't worry too much, RG, AmigaDOS is a minfield until you get used to it. **MS**

PAYING BY PHONE



I pay all my bills by phone, that is by phoning the TSB central computer and, when the

call is answered, switching over to the beep tone on the dialling pad and then make the appropriate beeps to the questions asked. Can I do this using my Amiga 1500?

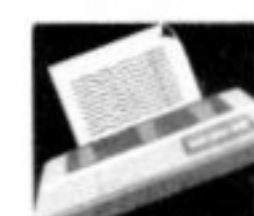
P B Blake
Hinckley
Leicestershire

There are, indeed, programs which emulate a touch-tone telephone by playing the tones through the Amiga's audio channels. Unfortunately, these require you to hold the telephone receiver close to the monitor speaker, which I'm sure you will agree is considerably more bother than using the telephone's keypad.

The computer-generated voice replies given by these services cannot be converted back to computer-readable data. Only the Bank of Scotland offers an on-line service with its Home Banking system (known, I think, as HOBBS).

Strangely enough, the designers of the Amiga built a similar idea to yours into the hardware. The serial port still carries audio pass-through lines, allowing telephone speech to be routed through the monitor. No external hardware has ever supported it, though, and probably wouldn't gain BABT approval even if it did. **SCR**

NOTEPAD PRINTING



I use the *Notepad* utility to print letters to my Star LC10 printer. The problem is that a full blank line is printed at the point at which *Notepad* starts to scroll its display. The text then continues printing out without anything missing. Is there a way around this problem?

Peter Walsh
Fareham
Hants

I think that this could well be another one of the many bugs found in *NotePad*. Personally, I use *ED* or *MicroEmacs* (from the extras disk). Since you are using a Star LC-10, you could try setting the Preferences Printer setting to 'letter quality' (as opposed to draft) and printing in draft from *NotePad*. This will cause *NotePad* to send just ASCII characters to the printer device; but the printer will get switched into NLQ

mode. Unfortunately, doing this means that you won't have access to fancy fonts. On the other hand, you should get good quality, business-like output. Moreover, it'll also be a lot faster!

If you are thinking of upgrading from *Notepad* to a 'real' word processor, make sure that you check out our major feature this issue, which starts on page 15. **MS**

WHAT IS AREXX?



I own a copy of the *Advantage* spreadsheet and I'm very pleased with it. There are still

things I'd like to be able to do, though. The manual suggests that **ARexx** is the way forward...

I've read a little about it, but the most useful thing I've found out so far is that it's pronounced 'A-Rex-Ex'. I've not seen it advertised anywhere, either.

Can you tell me more, please? I'd like to know if I could use it with my 1Mb 1.3 A500, where to get it, what it could do for me, what it would cost to buy and whether you have any useful pointers you can give about using it. Would it be of use for other applications too?

Roy G Ayres
Eltham
London

ARexx is an interprocess communications protocol. What this means in English is that it provides a means for any program or script file to take over control of another program that is running. For example, you could write a script to extract data from your spreadsheet and incorporate it into a word processor, like *ProWrite 3.0* or any other which supports ARexx.

ARexx will be included free with the upgrade to Workbench and Kickstart 2.0, although this may still be several months away. In the meantime you can purchase ARexx and run it on your machine if you want to. It's better to use ARexx with a hard disk, although it's not absolutely essential.

ARexx is available from most suppliers (for example, Almathera Systems ☎ 081-683 6418). It costs £45.99. ARexx is only of real benefit for applications that have an ARexx communications port. Try and make sure that the applications software you buy has one; in the future this will become increasingly important as more and more applications are designed to run ARexx. **JR**

READING THE KEYBOARD



I have programmed a sprite so that it can be moved by one pixel in any of four directions on the screen. I have not got a

JARGON BUSTING

- CIA** – The complex interface adaptor, which controls the two user-programmable input/output ports. They are used to control the serial and parallel ports, the keyboard and the disk drives.
- CON** – This is an AmigaDOS device which accepts text input and produces text output in a window. Key-presses are filtered to allow editing, and nothing is sent to the program whose window it is until the user presses [Return]. An example is the CLI window.
- DOS** – Disk operating system. On the Amiga, this acronym is better used as 'device operating system', since AmigaDOS controls more than just disks.
- Multi-tasking** – The ability of a computer to run more than one program at once. In practice, only one program is run at a time, with the others waiting their turn. The part of the Amiga's operating system called Exec handles the switching between programs, which is done so quickly that they all appear to be running simultaneously.
- RAW** – An AmigaDOS device similar to CON, but without the translation functions which allow line editing to take place.

joystick so I was hoping to control the movement by the keyboard (Q, A, O and P keys for left, right, up and down respectively).

I have disabled multi-tasking because I will be accessing and controlling the hardware directly. This rules out the possibility of using the DOS libraries to read the keyboard. It would not be desirable to do it this way as I would have to open a CON: or RAW: window.

The question is, how do I read which keys are being pressed by directly accessing the hardware (CIA I think)? It seems that register \$bfec01 is used for such a purpose but I am having difficulty in checking for keycodes being sent to this register from the keyboard.

F Chan
St. Helens
Merseyside

You are certainly right about it being possible to read keyboard data from CIA \$bfec01, but unfortunately it isn't quite as simple as it might at first appear.

Disabling multi-tasking, and here I presume you mean using *Forbid()* to prevent task switching, doesn't really help in this instance because your problem has little to do with what other processes might be doing – in all probability they would be using more conventional approaches to keycode collection anyway. Your potential interference comes from Exec's interrupt jobs, namely the keyboard device's character collection routine. Unfortunately it's not even a case of locking out Exec by suspending interrupts for a short period with *Disable()* and *Enable()* calls, since the character collection arrangement is interrupt driven.

The Amiga keyboard, as I'm sure you know, is intelligent in the sense that it has its own processor which handles the job of reading the keyboard and returning complete keycodes to the Amiga. The keyboard transmits 8-bit data serially to the 8250 CIA, and when character reception is complete the 8250 itself then generates an interrupt.

If you want to reliably read the keyboard at this level you are going to have to synchronize your \$bfec01 reads to the 8250 interrupt and this means adding additional interrupt code into the server chain. Details of how this are done are quite lengthy but it is dealt with in the Exec Interrupt chapter of the *Libraries and Devices ROM Kernel Manual*. You will also need to make sure that the priority of your interrupt code is high enough to ensure that your routine gets executed first.

At a higher level, another alternative would be to open the keyboard device yourself and get keycode data from that. You don't say exactly what you are doing but presumably the input device, which is started when the system boots, is still operational. Now, to be honest it is not advisable to read events from the keyboard device when the input device is active (because the input device then gets deprived of events which, in theory at least, it should have control over). Adding a high-priority keyboard reading routine to the interrupt server chain while the input device is active is regarded by many as being equally anti-social!

Is it really necessary? If your only interest is in detecting keypresses, then surely the more conventional

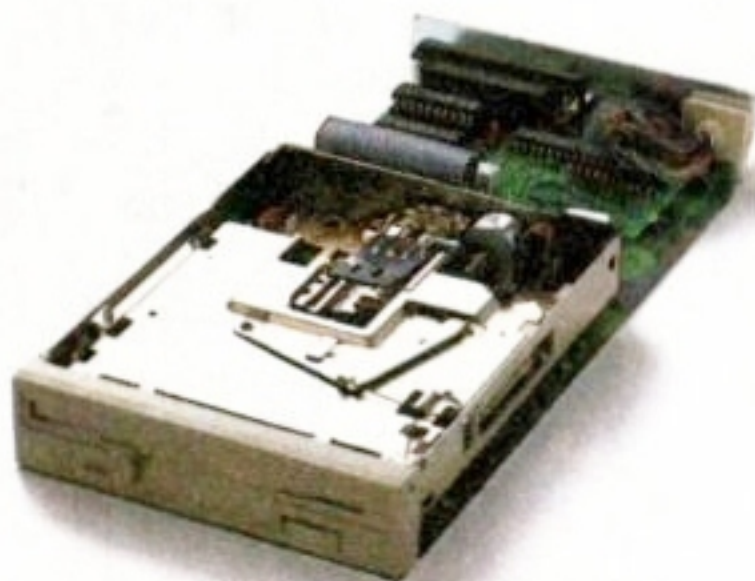
* continued on page 65



POWER COMPUTING

NEW LOW PRICES

PC880B POWER DRIVE



- Built-in Blitz hardware copier
- Built-in virus blocker
- No annoying click when drive is empty
- 12 month warranty

£65-00

PC880 POWER DRIVE £55-00

DUAL DRIVE

The only company to make the dual drive 'Quite simply, the best all rounder' ...

Amiga Shopper Best Buy April '91

New Dual 3-5" Drive with built-in power supply, same features as PC880B

£110-00

A500 Replacement Internal Drive



- No case modification required
- 40MB Slimline Hard Drive
- A500 Internal Anti-click board

£49

£299

£9-95

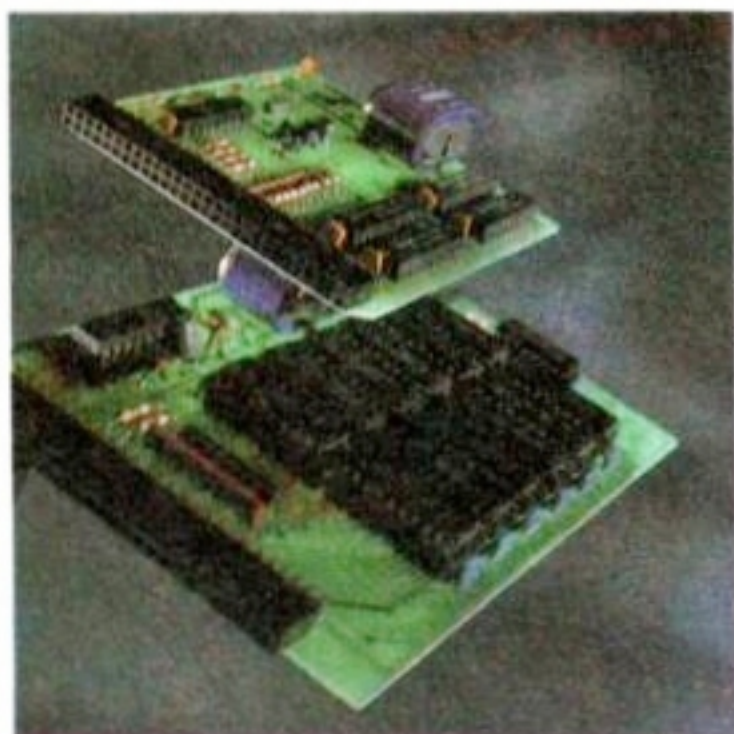
NEW BLITZ AMIGA

- Back-up your disks at lightning speed
- Copies from the internal to the external drive
- Backs-up an Amiga disk in as little as 40 seconds
- Backs-up other format disks (Atari, PC)
- Copies up to three external drives at once
- Stops ALL external drives from clicking
- Contains ANTI-VIRUS switch! - prevents viruses from being written into the bootblock
- Works on Amiga 500 or 2000

£25

£15

MEMORY



1-5MB Expansion Board **£79**

FULLY SUPPORTS 1MB CHIP RAM

MOST BOARDS DON'T

Plugs easily into your Amiga*

512 K RAM Card without clock **£24**

512K RAM Card with clock **£29**

* Fully compatible with 'Fatter Agnus' and 1MB Chip RAM Kickstart 1-3 and above, simple internal fitting

GVP Series 2 Hard Disk



- Fully SCSI compatible
- Up to 8MB FAST RAM on-board
- High speed "FAASTROM" controller
- Auto-boot from FFS partition
- All combinations available

50MB **£539** 100MB **£699**

NEW POWER SCANNER

- Scan from 100-400 DPI
- Simulate Grayscale
- IFF & Printer support
- Powerful Image edit software
- Crop, Cut Paste, magnify, edit
- Many more features

£159

AMIGA 500

- Amiga 500 512K **£330**
- Amiga 500 1MB **£350**
- Amiga 500 2MB **£395**
- Amiga 500 1MB + 40MB hard disk **£639**

Packs do not include software unless specifically stated

Amiga 500 Internal Hard Drive



- 20MB formatted
- 2" Hard Drive
- High Quality ICD interface
- Simple plug-in fitting

£359

ICD

- ICD Adspeed **£175**
- ICD Flicker Free Video **£250**
- ICD FFV + VGA Monitor **£499**
- ICD AdRAM MEMORY EXPANSION
- 0MB (A500 only) **£95**
- 2MB (A500 only) **£179**
- 4MB (A500 only) **£249**

SOFTWARE

- Pro Page 2.0 **£149**
- Pro Video Post **£149**
- Pro Write **£85**
- Sculpt Animate 4D **£279**
- Broadcast Titler II **£179**
- X Cad Designer **£77**
- X Cad Professional **£229**
- Deluxe Paint III **£87**
- Digiview Gold V4 **£99**
- Pixmate **£35**
- Vista **£49**
- Distant Suns **£36**
- Pen Pal **£79**
- Cross Dos **£25**
- Devpac Amiga **£45**
- Hisoft Basic **£55**
- Lattice C V5 **£149**
- Lattice C++ **£139**
- Hisoft Proflight **£34**
- Pro Draw **£100**
- Quarter Back **£35**
- Video Titler **£100**
- Turbo Silver **£100**
- Director V2 **£89**
- Photon Paint II **£85**
- Bars & Pipes **£120**
- Showmaker **£199**

GENERAL

- Hard wearing dust cover **£9**
- Philips colour monitor MkII **£249**
- KCS PC Power Board **£235**
- ATonce **£169**
- ATonce A2000 **£199**
- Floppy disk (min quantity 50) **£0.34 each**
- Maxell multicolour disk (10) **£9.95**
- Golden Image Optical Mouse **£39**
- Power Mouse **£15**

68040

- Accelerator board
- 50MHz
- Up to 32MB of RAM
- For Amiga 2000

£1999

(comes with 4MB)

NEXUS HARD CARDS



- High speed controller
- Up to 8MB RAM on board
- Easy to install
- Fully autobooting
- Compatible with GVP and ICD
- Nexus software

Bare **£199** 40MB **£349**
114MB NEC 20ms **£499**

GVP Series 2 Hard Card

- High speed 'FaastROM' controller
- Up to 8MB SimmRAM on board
- Fully autobooting
- Supports external SCSI devices

Bare **£199** 40MB **£349**
114MB NEC 20ms **£499**

GVP 'COMBO' Board

- 22MHz or 33MHz 68030 with 68882 numeric coprocessor
- Comes with 1MB RAM installed (4MB on 33MHz version)
- Expand up to 13MB (22MHz) or 16MB (33MHz) using custom Simms
- Full series 2 SCSI interface connecting directly to the 68030 bus
- 22MHz Combo with 1MB RAM **£799**
- 33MHz Combo with 4MB RAM **£1495**
- 40MB SCSI hard disk for Combo **£249**
- 114MB SCSI Hard disk for Combo **£299**
- 32-bit Simm 1MB **£99.95**

CHIPS

- 256K x 4 DRAM **£5**
- 1MB x 1 DRAM **£5**
- 1MB x 8 Simm **£40**
- 4MB x 8 Simm **£150**
- 8372 Fatter Agnus **£49**
- A3000 Static Column RAM **£28**

All prices include VAT, delivery and are subject to change

All trademarks acknowledged.

Specifications are subject to change without notice



POWER COMPUTING LTD
Unit 8 Railton Road Woburn Road Industrial Estate Kempston Bedford MK42 7PN
Tel: 0234 843388 Fax: 0234 840234



Next day delivery £4-50

DEMO DISK AS A GIFT



BACK ISSUES

Did you miss these Issues?

Then here's your chance to grab them while they're still available. Use the form opposite to claim your back issues of Amiga Shopper

£1.50 each including post and packing.

Don't miss any more!

Whilst you are sending off for these issues doesn't it makes sense to subscribe now so you don't miss any more bargains? For just £11.98 you will get the next 12 issues delivered direct to your home plus a special sampler disk – a gift with our compliments.

You know it makes sense. Do it now.

1 Sorry sold out

2 Buying a paint package plus reviews of Pagestream, Colourpic, Sequencer 1, KCS Powerboard, Scala and Broadcast Titrler.

3 Accelerating the Amiga plus reviews of Bars & Pipes, Daatascan, ATonce, DynaCADD and Basic languages

4 Buying a printer plus reviews of Pro-24, Real 3D, Wordworth, TEX, Imagine and Superbase 4

5 Amiga Answers special with tutorials on C, Basic, AMOS and AmigaDOS, plus reviews of Spectracolor, Quarterback, Superbase 4, Touch-Up, Action Replay, Canon BJ330, VideoCenter Plus and more

If you wish you can purchase demo disks 1, 2 and 3 separately for just £1.75 each
Use the order form opposite and please make sure you indicate which demo disks you require.

DISK 1

Contains demos of AMOS from Mandarin – the programming language that took the Amiga world by storm, Devpac 2 from HiSoft – the assembler that's used by the professionals, RealThings from RGB Studios – it brings things to life in Deluxe Paint III and lets you design, build and fly your own butterfly.

DISK 2

WORDWORTH This brand new word processor from Digita International is described by them as 'a writer's dream' and you'll be able to see if it is for yourself with this demo. You will also get a voucher enabling you to buy Wordworth for just £99.95 – that's a saving of £30 on its normal price!

SEQUENCER ONE In issue 2 of Amiga Shopper we said of this new sequencing program from Gajits Music Software "it has to be the budget priced sequencing software for the Amiga." Why not find out for yourself and take advantage of our special voucher offer to obtain a free disk of exciting new samples for use with Sequencer One?

3D CONSTRUCTION KIT If you've ever wanted to create your own 3-dimensional worlds then now is your chance with Domark/Incentive's brand new game creation program. It allows you to use Incentive's famous Freescape programming system to create your own stunning 3D games – without a scrap of programming knowledge. Don't be fooled though, this is a utility that will great programming power at your fingertips.

Keep your copies of Amiga Shopper safe and protected – right from the very start!

Only £4.95 EACH

Use the form opposite to place your order.



WHEN YOU SUBSCRIBE

Subscribe and get 12 issues of Amiga Shopper delivered to your door for just £11.98 PLUS you will also receive demo disk No.3 as a gift!

SUPERB DEMO DISK

When you subscribe to *Amiga Shopper* you not only get 12 issues of the most useful Amiga magazine delivered straight to your door, but also disk No.3 containing demos of new software to help you make your buying decisions. This brand new disk contains superb demos of:

**DISK
3**

Spectracolor: The new entry into the HAM painting arena looks set to upset the appletart. Try its 4,096 colours and animation facilities out for yourself with the demo version. You can wrap brushes on to three dimensional objects, and try out the rub-through effect for blending two images.

Superbase Professional 4: You have read a lot about the Amiga's premier database, and now here's your chance to try it out for yourself. Superbase is a fully relational system with its own programming language, and with it you can set up a database for any purpose you like. It can even handle graphics as well as numbers and text.

Just look at all the benefits that you get when you subscribe

- You save time
- You save trouble
- You guarantee your copy
- You get it delivered
- You receive a superb demo disk – as a gift

All this for just
£11.98!!

Don't run the risk of missing the latest news, expert advice and best buys for your Amiga. Complete the coupon below and return it now or call our credit card hotline on 0458 74011

YES, YES, YES! I WISH TO BECOME A SUBSCRIBER TO AMIGA SHOPPER. PLEASE SEND ME THE NEXT 12 ISSUES AND THE SPECIAL SAMPLER DISK NO 3.

Please tick the subscription you require ☐ UK **£11.98** ☐ EUROPE **£25.98** (Airmail) ☐ REST OF WORLD **£51.98** (Airmail) ☐ WORLD **£22.42** (surface)

Please also send me *please tick*

BACK ISSUES **£1.50 EACH** ☐ 2 ☐ 3 ☐ 4 ☐ 5 SAMPLER DISK **£1.75 EACH** ☐ 1 ☐ 2 ☐ 3 BINDER **£4.95** ☐ Total amount payable £

NAME TELEPHONE NO

ADDRESS

POST CODE

METHOD OF PAYMENT *please tick*

☐ **VISA/ACCESS** CARD NO EXPIRY DATE

☐ **CHEQUE** Please make cheques payable to FUTURE PUBLISHING LTD and send together with this card in an envelope to the following address: AMIGA SHOPPER, FREEPOST, SOMERTON TA11 7BR

NB. THIS OFFER CLOSSES ON 31ST OCTOBER 1991

AS/MAG/1091

AMIGA PACKS

ALL AMIGA PRICES INCLUDE VAT AND UK DELIVERY. ALL PRODUCTS ARE UK STOCK AND CARRY A FULL 12 MONTH COMMODORE WARRANTY. PLEASE RING US BEFORE ORDERING TO CHECK STOCKS AND CURRENT PRICES.

AMIGA A500 BASE A500 computer, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software * STOCKS VERY LIMITED - SO HURRY * **£299.00**

AMIGA A500 BASE 1MB A500 computer with extra 512K ram expansion, mouse, tv modulator, manuals, Workbench, etc supplied 'bare' with no games software. * OUR RAM EXPANSIONS DO NOT INVALIDATE YOUR WARRANTY * **£325.00**

AMIGA A500 ASTRA A500 512k computer, mouse, tv modulator, manuals, Workbench, etc supplied with 10 great software titles (see A500 1MB ASTRA pack below for details) **£325.00**

AMIGA A500 1MB ASTRA Amiga A500 computer, 512K Ram expansion with clock and battery back-up, mouse, tv modulator, manuals, Workbench etc disks, plus the ASTRA 10 games pack including the following games : Datastorm, Dungeon Quest, E Motion, Grand Monster Slam, Kid Gloves, Powerplay, RVF Honda, Shuffle Puck Cafe, Soccer and Tower of Babel **£350.00**

AMIGA A500 1MB CARTOON CLASSICS Amiga A500 computer, 512K Ram expansion with clock and battery back-up, mouse, tv modulator, manuals, Workbench etc disks, plus The Simpsons, Lemmings, Captain Planet and Deluxe Paint 3 **£359.00**

AMIGA A1500 PACKS

1mb

3mb

5mb

9mb

AMIGA A1500 BASE A1500 computer with 2 x 3.5" 880k disk drives built in, and a mouse. The A1500 base pack is supplied with no software. **£599.00** **£795.00** **£875.00** **£1000.00**

AMIGA A1500 SOFTWARE consists of A1500 base pack and Platinum Works, D Paint 3, Populous, Simm City, Battle Chess, Their Finest Hour and 2 books **£655.00** **£850.00** **£930.00** **£1055.00**

NEW!! PROTAR A500 HARD DISK DRIVES

At last ... high quality hard disk drives for the Amiga A500. The new PROTAR range of A500 hard disks are here ... and just look at the specifications ...

- * Perfect colour and fitting to the A500
- * 5 times faster than the A590
- * 8MB internal ram expansion facility
- * 1 year REPLACEMENT warranty
- * Auto parking & auto booting

- * Sizes range from 20MB to 160MB
- * Disk Cache versions
- * Separate PSU available
- * Sub 24 millisecond access time
- * Hard disk management software

PHONE TODAY FOR PRICES

Accessories

A500 512K ram upgrade + clock	£29.99
A500 15Mb ram upgrade	£99.99
A590 20Mb hard disk drive	£284.95
External 3.5" Disk Drive	£65.00
Golden Image Hand Scanner	£169.00
Amiga Stereo Scart Lead	£12.99
Amiga 8833 MkII Lead	£12.99
Mouse Mat	£3.50

512K Ram Upgrade with Clock

We are now stocking the new PROTAR 512K RAM UPGRADE WITH CLOCK. The neat, compact 4 chip design comes complete with box, instructions, on/off switch and a full 12 month warranty.

PROTAR 512K Ram with clock **£29.99**

We also have limited stocks of the genuine Commodore A501 512K Ram Expansion, which we are offering at the ultra low price of :

A501 512K Ram with clock **£39.99**

Please specify which 512K ram upgrade (either Protar or Commodore) when ordering from us.

PRINTERS

All of our printers come with a parallel cable to suit Atari ST, Amiga and all standard PC etc (other cables available at extra cost - ask for details). All printers carry a full 12 months warranty. We only sell genuine UK stock - we do not offer inferior "grey imports".

SPECIAL OFFER! For a limited period only we are offering a CITIZEN PRINTER STARTER PACK with all Citizen printers. The pack comprises of : 3.5" disk full of printer drivers for the ST, Amiga & PC; 200 sheets of fanfold tractor feed paper; 200 fanfold tractor feed address labels; 5 tractor feed envelopes all for only £12.99 on top of the price of the printer

Citizen 120D (9-pin, 144 cps draft, 30 cps NLO) **£139.00**
Citizen Swift 9 (9-pin, 192 cps draft, 48 cps NLO) **£199.00**
Citizen 124D (24-pin, 144 cps draft, 48 cps LQ) **£199.00**

Citizen Swift 24 (24-pin, 192 cps draft, 64 cps LQ) **£299.00**
Citizen Swift 24X (24-pin, 15" carriage version of Swift24) **£399.00**

Star LC10 Mono (9-pin, 144 cps draft, 34 cps NLO) **£155.00**
Star LC200 Colour (9-pin, 180 cps draft, 45 cps NLO) **£220.00**
Star LC24-10 Mono (24-pin, 180 cps draft, 60 cps LQ) **£215.00**
Star LC24-200 Mono (24-pin, 200 cps draft, 67 cps LQ) **£260.00**
Star LC24-200 Colour (24-pin, 200 cps draft, 67 cps LQ) **£295.00**
Star XB24-10 Mono (24-pin Professional Series) **£475.00**
Star XB24-15 Mono (24-pin 15" version of XB24-10) **£600.00**

Canon BJ10E Bubble Jet (ink jet, portable and compact) **£289.00**
Hewlett Packard Desk Jet 500 (ink jet, 3 pages per minute) **£459.00**

Philips 8833 MkII Colour Monitor

The Philips 8833 MkII is the perfect colour monitor for Amiga owners. With its stereo sound and super quality picture it really shows off the full capabilities of the Amiga. The Philips 8833 MkII also comes with 12 months on site warranty FREE!

8833 with Amiga cable **£249.99**

Or even better

We are proud to announce the introduction to our range of the new VISTO colour monitor. The VISTO C14M, made under official UK licence from Philips themselves, is identical in every respect to the Philips 8833 MkII including all inputs and outputs. But VISTO have enhanced the looks of the monitor by replacing the case with a new upgraded better looking version. The VISTO C14M has a no quibble 12 month replacement warranty and comes free with cables for all Amigas and all Atari STs.

VISTO C14M £248.00

IF YOU WISH TO ORDER WITH US, THEN PLEASE SEND YOUR CHEQUES, POSTAL ORDERS, CASH ETC TO OUR MAIL ORDER ADDRESS OR RING OUR MAIL ORDER HOTLINE ANY TIME BETWEEN 10.00AM AND 12 MIDNIGHT, 7 DAYS A WEEK, AND USE YOUR CREDIT CARD, OR PAY A VISIT TO OUR SHOP, CHIPS COMPUTER CENTRE.

SHOWROOM

CHIPS COMPUTER CENTRE, 53 RUGBY ROAD, WORTHING, WEST SUSSEX BN11 5NB.

TEL : (0903) 700804.

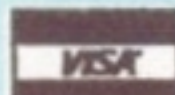
OPENING : MON TO FRI 10AM TO 6PM. SAT 9.30AM TO 5.30PM
FINANCE / CREDIT FACILITIES.

PART EXCHANGE CONSIDERED. NEW AND USED EQUIPMENT

ATARI ST, AMIGA AND PC COMPATIBLES ON DISPLAY.

ALL TYPES OF SOFTWARE (BUSINESS / LEISURE).

REPAIRS UNDERTAKEN. TRAINING. INSTALLATION. ON-SITE WARRANTIES.



MAIL ORDER

BEST PRICES (DEPT AS), 53 RUGBY ROAD, WORTHING, WEST SUSSEX BN11 5NB.

TEL : (0903) 700714.

OPENING : 7 DAYS A WEEK 10AM TO 12 MIDNIGHT
ALL PRICES INCLUDE 17.5% VAT AND FREE DELIVERY (AVERAGE 4 - 5 DAYS).

PLEASE ADD £7.00 FOR NEXT WEEKDAY DELIVERY.

GOODS USUALLY SENT OUT THE SAME DAY WHEN

CLEARED PAYMENT IS RECEIVED BEFORE 2PM.

PERSONAL CHEQUES REQUIRE 7 DAY CLEARANCE.

All prices include 17.5% VAT and free UK delivery unless stated otherwise. All prices / specifications / special offers subject to change without notice.

BEST PRICES MAIL ORDER - OUR TELESales LINES ARE OPEN FROM 10.00AM TILL 12 MIDNIGHT - 7 DAYS A WEEK

continued from page 65

to 16 and do not add additional 'export channels'. The first connection you don't really need is the one running from output 2 on the interface to the sequencer input on the RA-50. Throw this away and take the MIDI lead from the keyboard MIDI input and place it in the sequencer input on the RA-50. The RA-50 is quite a complex beast, with two sets of MIDI ports for different parts of its internal workings. However, the part you need to access is the sequencer, unless you are using it as an auto accompanist for the PF 80 - which will complicate matters and generate lots of additional patterns that you probably don't actually need.

You don't mention how you connect the microphone, but if you are plugging it into the second amplifier, this may account for the lack of volume. Microphones have a low output and the inputs on the back of hi-fi amplifiers are nearly always for line inputs from cassette decks and so on. There are two ways around this problem. The first is to use a cassette deck with a blank tape inserted in record mode with the pause button on. With the microphone in the cassette mic input, the signal will be pre-amplified and routed from the cassette deck to the amplifier and then to the sampler. But the easiest and probably the best solution is simply to plug it directly into *Audio Engineer*, making sure that you flick the switch from line to mic on the front panel. If the result is still very low then I can only suggest that the microphone is the wrong type for one reason or another; either it is a dud or it requires external power. If in doubt, wave it under the nose of a specialist hi-fi shop (not your average high street electronic chain store, please!). Without actually seeing the amplifier and knowing how it works I can't really suggest why you are not getting a line out signal from it. However, you should run the usual checks on leads or swap amplifiers so as to isolate the problem.

The set-up you have is quite comprehensive. The thing to do is to set MIDI channels for each instrument. I would suggest that we start with the RA-50 and carry on from there: RA-50 channels 2-10 (10 is the drum channel - these are fixed anyway), PF80 Channel 1 (as it is the master keyboard), DX21 Channel 11 (it only works on one channel anyway), M3R Channels 12-16 only.

In this way you have covered all channels. The only outputting keyboard is the PF80, and it doesn't really matter what channel it goes out on as the software will alter the outgoing information.

To record and playback on *Music X*, follow these simple steps:

Go to the Mode menu, select Set Filters and enter the filter page. The top row of numbers needs to be set to the channel that the PF80 is outputting on, and the SET ALL figure should be on the channel (that is, instrument) you want to play and record on. Check that Data Echo is set to RE-OUT and then return to the Sequencer page. Move the track cursor to a free track - the Out column should read Ext 1 - and then hit Record. You will hear the metronome and be able to play the instrument/channel you have picked from the filter page. Having completed that, hit Store. Return to the filter page and pick a new instrument by changing the SET ALL channel. On returning to the sequencer page you will need to move the track cursor to a blank track. Repeat the recording process. You should hear the first track you recorded along with the new instrument that you are now recording. Repeat this until the track is built up. All you are doing is changing the MIDI output channel, and thereby addressing a new instrument in one of your modules, thanks to the filter page of *Music X*.

To get *Music X* to play your samples you will need to save the samples made with *Audio Engineer* in IFF format. *Music X* can then load and play them on a separate track, changing Ext 1 to Int and choosing the sound you want. *Music X* has a page especially for editing and organising samples.

The direct answer to the last part of your question is that you can't put samples directly in the PF80 or the DX21. However, you can play them back using the PF80 as the master keyboard and *Music X* as described above. The sound will come from the Amiga audio sockets. **JB**

UPGRADING RAM



I would like to upgrade my Amiga by a further 2Mb because I use my machine mainly for graphics and ray tracing.

I have an Amiga 500 (in a Checkmate case), 1Mb Fatter Agnus upgrade, 0.5Mb RAM on the motherboard and 0.5Mb RAM in the trapdoor (configured at \$000e8e - \$0fe7ff, giving 1Mb of Chip RAM), and an A590 20Mb hard drive with 2Mb of RAM (configured at \$200000 - \$3ffff giving 2Mb of DMA Fast RAM). This gives a total of 3Mb of RAM.

My question is, which RAM upgrade will work with my memory configuration? I thought of buying Supra's 500RX, which will give me the 2Mb I'm after and enable me in the future to add further RAM. I've

also thought about Cortex's RAM expansion. Both devices would enable me to use the through port to connect to my A590 hard drive, but the question remains: will the extra RAM configure as Fast RAM? Will it be compatible with my DMA RAM in the A590?

**Andy Wilkinson
Lytham St Annes
Lancashire**

The simple answer is yes, both the Supra RX and the Cortex expansion are true autoconfiguring memory devices, so both will allow you to add up to 6Mb of extra DMA RAM to your system with no compatibility problems. Once the card is installed you should run *MergeMem* in your s:startup-sequence file to merge the two memory expansions into one contiguous block of memory. **JR**

AMIGA CAD



I have an Amiga 500 with 1Mb RAM and was wondering what the best CAD package available at a reasonable price is, and also what printer I would need to reproduce a reasonable working drawing with, as it will mainly be used for college projects. Also, what sort of memory upgrade would be needed to run the program?

**P Sloper
Salisbury
Wiltshire**

X-Cad Designer from AVT (☎ 081-892 3637) is what you want. At £99 it isn't the cheapest, but it is extremely fast and has a very high specification. It is distributed by, amongst others, Power Computing (☎ 0234 843388) and HB Marketing (☎ 0753 686000). A plain 9-pin Epson-compatible printer produces surprisingly good quality output, but the output on a 24-pin Epson compatible (such as the NEC P20) really is superb.

You might wish to investigate a wide carriage printer, since these can generally take A3 paper. Although A4 works, A3 is the smallest size for really useful plots.

X-Cad Designer works well in 1Mb, although two disk drives make life easier. More memory is always useful, but your current setup sounds fine. **SCR**

PC RAM IN AN AMIGA



I recently purchased, for a bargain price, a 4Mb memory expansion for a Compaq

computer. Obviously this is not suitable for the Amiga, but I was hoping I could transfer the chips to an Amiga expansion board.

The board is populated with these chips: TC511000AP-10. If

these chips can be utilised, could you please recommend a suitable expansion board?

**David Williams
Stanwell
Middlesex**

The chips on the board are 1Mb x 1 100ns chips. In theory these can be used; most Amiga 2000 cards use 1Mb x 1 chips. However, there are a few problems. First, recent Compaq memory cards use surface mounted memory chips. These look like small square blocks with pins on each side, soldered directly to the circuit board. These are not removable and can't be used with the Amiga. If the chips are socketed they are likely to be one of two types: DIP type are standard chip-shape with a row of pins along each side; ZIP are newer chips which stand side-on with all the pins along one edge.

The only board I know of for the Amiga 500 that will take 1Mb x 1 DIP chips is the Spirit X-RAM expansion, although I don't know of anyone who is still supplying this.

As for ZIP chips, I haven't found anything that will use 1Mb x 1 ZIPs. All the expansions using ZIP chips take the 256 x 4 ZIP instead. **JR**

NOTATING MUSIC



I am a keen musician and, since I write lots of music, I would appreciate the help of

my Amiga. Unfortunately I don't have any suitable software because commercial products are either too expensive or they give 99 per cent attention to MIDI and 1 per cent to music notation printing. I am an acoustic instrumentalist and don't have the facilities to do justice to a £200 MIDI/music package. My real requirement is the ability to print sheet music. Is there a program that will do just this, or would it be possible for me to write my own?

**Steve Wilson
Salford
Greater Manchester**

Your letter echoes the anxieties of most musicians who are involved with both music and the Amiga. The simple fact of the matter is that Amiga notation software is still thin on the ground, and packages which are good are reasonably expensive. The reasons are numerous: score writing, analysing and printing has proved to be a surprisingly difficult computing problem to solve. Up until fairly recently it was also a fairly specialised area and the small potential market had limited the interest of the Amiga-orientated music software companies.

I'm sure you've already heard of Dr T's *Copyist* program, but you might not be aware that more than

one version exists. The top of the range *Copyist DTP* retails at over £300 but there is budget version, called *Copyist Apprentice*, which retails for around £99. The *Apprentice* can handle 16-stave notation, is aimed at the dot-matrix printer user, and has had several enhancements since it first appeared. I think that it would be worth having a look at *Apprentice* to see whether it would be suitable. Talk to Zone Distribution (☎ 081-766 6564), which is now the main Dr T agent in this country.

As far as the possibility of writing your own program is concerned the chances, to be honest, are slim. I wouldn't like to have to do it, and nor would any of my MIDI/music-mad associates. Sure, it would be an interesting project to get involved in, but it would take an immense amount of time and this is probably the reason that the Amiga public domain world is virtually devoid of such programs! Unless you intended to market the final program, this 'do it yourself' approach would just not be a viable option.

Don't believe me? Check out the *Apprentice*, work out how many hours of your time is worth £99, and then estimate how much progress towards writing such a program you'd make in that amount of time. My guess is that anyone who tried such an exercise would barely be able to scratch the surface of the problem before it became an uneconomical idea. **PAO**

USING A MAC HARD DISK



I have been give the option to purchase a 20Mb Macintosh hard drive fairly cheaply. Is there any way that I can connect it to my 1Mb Amiga 500?

If it is possible to connect it, will there be any problems with autobooting and software compatibility?

J C O'Shea
Killarney
Republic of Ireland

Macintosh drives use the standard SCSI interface, so yes, you can connect it. You will need to purchase a hard drive interface for your Amiga 500. The cheapest interface you can use is the Dataflyer (£129.95), but any SCSI interface for the Amiga will work. As long as you are using Kickstart 1.3 you will have no problems with autobooting. You shouldn't have any special problems with software compatibility either. Some software will refuse to work with any hard disk, but that's because the software was badly written and isn't the fault of your new hardware. **JR**

PRINTING FROM DPAINT



How can I leave the background white and print drawings in colour from *Deluxe Paint III*?

Normally, with a white background the printer prints dots all over the page. I have a Star LC24-200 printer.

P B Blake
Hinckley
Leicestershire

The answer to your question is that it shouldn't. Although I have been unable to recreate your problem I assume your white background is not as white as it looks. For instance, have you checked the RGB settings in the palette? For a full white R, G and B should be set to maximum. Failing that, try setting the colour correction in the printer preferences OFF. If any other readers are having similar problems – or know if a solution – I would like to hear from them. **MS**

USING ICONX



I have written an AmigaDOS script file to check the amount of Chip and Fast RAM present in my system.

I have given my script file an icon and used *IconX* so that I can load it from the Workbench. Here is the program:

AVAIL

ASK "Press Return"

ENDCLI

The problem is that when it loads up, the *IconX* window appears, stays on screen for about two seconds and then disappears. If I use the 'Tool Types' requester to set a long delay, it ignores my [Return] presses and disappears after the specified time delay. What am I doing wrong? I want the window to appear when I double-click its icon, and go away on cue, at my [Return] key command, just like a normal script file. Also, can you tell me how I change the window's size and title?

Kenneth Kilfedder
Ballymena
Co. Antrim

You have managed to find a peculiar bug in *IconX* (one of a number, as a matter of fact). The ASK command just does not seem to work from an *IconX*-launched script. The way around it is to make the first line of your script:

.KEY DUMMY

This makes the script expect a parameter to be passed to it; not that a parameter is actually going to get passed, but it seems to make the ASK command work.

To change the window's size and title you must make another entry in the Tool Types requester of the Info menu. Enter:

WINDOW=CON:0/0/500/200/ Through the round window

The first word must be in upper case. The four numbers following CON: represent the window's top left corner and width and height; after these comes the window's title. **CR**

WHAT VIDEO SETUP?



Later this year I plan to dabble in the world of desktop video. I already own a 1Mb Amiga, extra disk drive, 1084S monitor and *Deluxe Paint III*. I also have an Amstrad Double Decker VCR, a Sony video with steady pause and a Panasonic M90 video camera.

I would like your advice on several things.

1. I require a good quality genlock. Please name one. Alternatively, do you think the G2 Video Center would be a better bet?
2. Can all software run on any genlock? If so, what would you recommend for overall video production?
3. Will an A590 fitted with 2Mb be sufficient for serious video applications?

4. Can you recommend a reasonable videotape editor which will allow me to edit my tapes and add music and sound effects to them?

5. I also require a colour digitiser. Would DigiView fit my bill, or does any other come to mind?

My affordable price range is £500-800 for the genlock, £300 for software, £500 for the editor and £300 for the digitiser.

J McDermid
Glasgow

I dug out a few copies of the trade mags and put on my thinking cap, and here are a few ideas for you. But please understand that this list of answers is by no means exhaustive, and that my knowledge is not encyclopaedic.

1. As this question appears to be tied up with question 4 I feel I cannot give you a straight "Buy this one" answer. I would say that if you want a vision mixer then you would only require a simple genlock – no effects, no wipes, as these will be included in the vision mixer. Therefore I would opt for something like a Rendale 8802 or the new RocGen. You won't really gain too much by having a higher quality unit as you will be recording to VHS and, while more expensive units will give better overall quality, I'm afraid to say that much of this will ultimately be lost with VHS. By all means buy the G2 Videocenter if you wish, as it is a good unit, but remember that it is the tape format which finally limits the quality of the picture.
2. I'm not going to stick my neck out and say that absolutely every piece of software will run with every genlock, because Sod's law says that there must be a combination which won't. But all the combinations that I've ever tried have worked fine, so I wouldn't really worry too much about this point.

As an addition to *Deluxe Paint III* I would recommend a video titler such as *Broadcast Titler 2* or possibly the new release of *Scala* (which should have scrolls and crawls and be much smoother). And you will want a few good, clear typefaces in various fairly large point sizes. And of course a digitiser (see point 5) and possibly a HAM paint program such as *Digipaint 3* or *Photon Paint 2*, though you may like to wait for *Deluxe Paint IV*.

3. In general, yes, 2Mb will get you a long way down the road. Most of my work is done on 2Mb of memory, but take care to remember that it's usual that the more colours you use – and the higher the screen resolution – then the more memory will be consumed by your work. Also, animations tend to slow down as

continued on page 69

JARGON BUSTING

Chip RAM – The area of the Amiga's memory directly accessible by the custom graphics and sound chips. Originally a maximum of 512K, the limit on newer machines fitted with the Fatter Agnus graphics chip is now 1Mb, allowing smoother animations and more screens to be displayed at once.

Fast RAM – Any extra memory which is not Chip RAM. The custom chips cannot access it, and because such accesses to Chip RAM can block out the central processor, Fast RAM is faster in use.

ICONX – A handy little program which will enable a Shell script (that is, a collection of Shell commands held in a file) to be executed by clicking on an icon via the Workbench.

WeServe

of Hampshire
Best for service

Canon BJ-10e

360dpi Inkjet printer
with cable & paper
£233.83 (£199.00 + VAT)

Panasonic

KXP1180 134.00
KXP1123 185.65
KXP1124i 252.63
prices inc. VAT cable & paper

Amiga 1500

with Full software pack
£649.00 inc VAT

CBM 1084SD

with cable
£249.00 (£211.91 + VAT)

Philips CM8833 Mk2

with cable
£225.00 (£191.49 + VAT)

1M Cartoon Classics

£369.00 inc VAT

Class of 90's

£439.00 inc VAT

Quantum 52M Disk

+ Controller for A1500
£329.00 inc VAT

Accessories

Inc VAT
Joystick/Mouse twin extension£4.70
3M Joystick/Mouse 3M ext£3.75
A500 Printer lead£7.95
A500 to Scart lead£9.95
Modulator/Disk Extension£10.95
23 Way Plug or Socket£3.45
A500 Dust Cover£4.70
Mouse Mat (thick soft type)£4.95
A501 Memory Upgrade/Clock£42.00
KCS Powerboard 740K & IBM£224.90
Mouse House£2.95
GVP Series 2 with 52M HD£409.00
IM Internal 3.5" drive£57.50
A500 Replacement PSU£39.00
1/2 Meg Ram No Clock£23.90

Naksha Mouse

With house & mat
£21.50 inc VAT

Squick Mouse

£13.90 inc VAT

1/2 Meg Ram + Clock

£24.95 inc VAT

Phone for Amiga Software catalogue.

Many titles inc. Educational.

WeServe

Larger items delivered
by Securicor



Star

LC10 149.00
LC200 199.00
LC2410 188.00
LC24200 244.40
LC24200Col 299.00
prices inc. VAT cable & paper

Printer Dust Covers

Most types in stock
from **£4.70 inc VAT**

Deskjet 500

H.P. 300dpi Inkjet printer
3 year warrantee

£386.58
(£329.00 + VAT)

Swift 24

2 year warrantee
£245.00 inc VAT
Colour kit with printer £24.00

Citizen Swift 9

with cable & paper
£175.00 inc VAT

Citizen 120D+

with cable and paper
£128.00 (£108.94 + VAT)

Cumana CAX354

External 1Mb Drive
£56.95 inc VAT

A590 20Mb Hard Disk

£269.00 inc VAT

DISKETTES

SONY branded

(100% certified error free)

Inc VAT

10 3.5" DS/DD 135 tpi£7.50
50 3.5" DS/DD 135 tpi£32.30
100 3.5" DS/DD 135 tpi£59.93
1K 3.5" DS/DD 135 tpi£540.50

DISKETTES

SONY bulk

(lifetime warranty)

(100% certified error free)

Inc VAT

10 3.5" DS/DD 135 tpi£5.95
50 3.5" DS/DD 135 tpi£19.80
100 3.5" DS/DD 135 tpi£37.95
250 3.5" DS/DD 135 tpi£84.89
1K 3.5" DS/DD 135 tpi£339.58
50 x 3.5" Disk Box with lock£5.99
100 x 3.5" Disk Box with lock£7.50

Phone for our 40 page catalogue

EDUCATIONAL AND GOVERNMENT ORDERS WELCOME

All products have a 30 day money back & 12 month warranty.

Prices subject to variation without prior notification.

Established 6 years. We are closed Saturday afternoons.

Free parking 2 minutes from M27 junction 11.

Postage 94p (80p + VAT) Securicor £6.46 (£5.50 + VAT)

Amiga Shopper Dept.

40-42 West Street,

Porchester, Hants.

PO16 9UW

Tel: 0705 325354



GALAXY GRAFIX
FREEPOST
SWANSEA SA2 9ZZ

0792-
297660

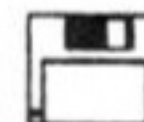
You get more value for your money from a company that specialises in video graphics.

Not only do we provide a full range of Amiga hardware and software, with a telephone help-line on all purchases, but also a wealth of advice on how to get the most out of your Amiga.

AMIGA VIDEO GRAPHICS

Send for full details now.

Existing Amiga owners send only 3 x 22p stamps for our Info Disk.



Make Money With A Home Computer

Microcomputers have created some of the best money making opportunities available today. Personal computers make it possible for people to do work at home that just a few years ago required expensive equipment. What's more, modern software means you don't have to be a computer whizz in order to take advantage of these money making opportunities.

A new Special Report called *How to Make Money with a Home Computer* contains the latest up-to-date information on the best ways to turn a small personal computer into a money making machine. You'll also discover excellent sources of information most other home computer owners don't even know exist - and from which they therefore cannot profit.

Included in this Special Report is a

short but comprehensive guide to business basics - the steps you have to take in setting up this or any other home business *plus* the marketing advice you will need to get your new enterprise off to a flying start.

Get all the facts. Order *How to Make Money with a Home Computer* today. This confidential Special Report is being made available at just £10, post-paid. What's more, it is guaranteed - you can return it at any time for a full refund if not completely satisfied.

To order, send your name and address with payment to **Carnell Ltd, UK Computer Research**, Unit 8B, Ham Green, Bristol BS20 0XH allowing up to 10 days for delivery. And, remember - this Special Report reveals just which are the best ways to make money with a home computer.

SOFT EXCHANGE

COME TO US FOR PRICE QUALITY AND SERVICE.
REMEMBER WE DO NOT SELL CHEAP INFERIOR QUALITY DISKS YOU CAN BUY THESE FROM OTHERS

	Panasonic Bulk 3.5 DS/DD	Sony Bulk 3.5 DS/DD	K.A.O. 3.5 Branded
10	£4.99	£5.99	£5.99
20	£8.49	£9.99	£10.99
30	£12.49	£14.49	£15.99
40	£15.49	£17.99	£19.99
50	£18.99	£21.99	£22.99
100	£33.99	£38.99	£42.99
200	£63.99	£75.99	£79.99
300	£94.99	£108.99	£114.99
400	£123.99	£139.99	£147.99
500	£154.99	£169.99	£179.99
1000	£289.99	£329.99	£349.99
2000	£574.99	£659.99	£689.99

Includes labels and lifetime guarantee

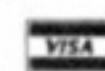
SPECIAL OFFERS

10 Disks + 100 cap box£10.99	50 Disks + 100 cap box£24.99
20 Disks + 100 cap box£13.99	100 Disks + 100 cap box£39.99
30 Disks + 100 cap box£18.49	200 Disks + 2 x 200 cap box £67.99
40 Disks + 100 cap box£21.99	

ACCESSORIES

40 cap box£5.99	Disk labels 500£7.50
80 cap box£6.99	Disk labels 1000£13.99
100 cap box£7.99	Disk head cleaner£2.99
Banx stackable boxes£8.99	Dust cover (keyboard)£4.99
Mouse mats£2.99	Dust cover 12" monitor£5.99
Disk labels 50£1.50	Dust cover 14" monitor£6.99
Disk labels 100£2.50	Logitech 2 button mouse£23.99
Disk labels 200£3.50	Wang 5.25" disks box of 10£4.99

All prices include VAT, post and packing in UK. Overseas orders please write or telephone. To order please send a cheque/P.O made payable to **SOFT EXCHANGE, 101 CLIFTON ROAD, SOUTH NORWOOD, LONDON SE25 6QA. TEL 081 653 9094 (24 hours order line)**
Access/Visa accepted. All above offers close 30.09.91 government and educational orders quoted at very competitive prices



continued from page 67

they get larger – so always try to keep the number of colours you use to the minimum necessary and work with the screen resolution best suited to the work you're doing. There are times when all the memory you have won't be enough. It happens to us all. Then you just have to adapt. Or buy more memory.

4. Now, this one's tricky, because I'm confused as to what you mean. If you really require a tape editor then you're looking for something to control your video decks in order to automate the process of cutting the pictures together. And as I assume that you will be using your Amstrad as source machines, I hate to be a spoilsport and tell you that I think you will have very little hope of ever being able to accurately control this particular machine.

However, if what you really mean is a vision mixer, rather than an editor, the situation is a lot more hopeful. There are loads of VMs out there, and quite a few in your price range. For instance, Edit Junior (£180), VEC2050 (£299), Panasonic WJMX10 (can be found for less than £800 if you shop around), Panasonic WJ-AVE5 (£600), JVC JX-SV77 (£600). Now, all these items come with different features and, obviously, different prices. Much as I would like to recommend one to you I think it would be unwise for me to do so as you should try to judge which one will best suit yourself. As always, a good place to look for more information about such items is in a magazine such as *What Video*. Then ask for brochures from the manufacturers, and try to get a demo or two at local dealers.

And when you've finally got a mixer, put the genlock 'downstream' of it (that is, between the mixer output and the recorder) so that you will be able to put graphics over mixes and wipes, which can really help to make everything appear much more polished.

5. Since you have a solid pause then either Digiview or the Rombo Complete Colour Solution will do the job for you. Each has its own good and bad points – Rombo lets you do lots of things like grab live video images, where Digiview won't, but I think that the Digiview quality is superior to CCS. Perhaps you could buy both, with the money you might save on your genlock! Then you could use the Rombo colour splitter with Digiview as well. **GW**

PASCAL COMPILER



Please can you tell me if there is a program out there that will allow me to program in Pascal on my Amiga 500. Also, I am

thinking of upgrading my system to the A3000 league. Do you recommend building up my existing system bit by bit or going out and buying an A3000 straight off?

M Wong
Chislehurst
Kent

At the moment, there is only one Pascal package and that is *PCQ* in the public domain, on Fish Disk 339. It works, but can be a little difficult to set up for anyone unfamiliar with the Amiga Shell.

HiSoft is currently developing a commercial version of Pascal. As with all of HiSoft's packages, it will come with a comprehensive screen editor and a decent manual. It is scheduled for release in the autumn. You can contact HiSoft on ☎ 0525 718181.

As for upgrading to an A3000, it all depends on what you need that sort of power for. If there are certain things you require, such as a faster processor or hard disk, then you are probably better off expanding your present system. But before you could expand your A500 into something equivalent to an A3000, you would have to get some means of increasing the number of expansion slots, such as the Bodega Bay expansion unit. This is before you even buy any of the extras themselves. Also, Workbench 2 is currently unavailable for anything but the A3000, as are some of the new custom chips used in it.

In short, if you want a full A3000, you're probably better off buying one. If you want your Amiga to do some of the things that an A3000 can do, then it would be cheaper and more sensible to expand it. **CR**

AUTOBOOTING DISKS



I was particularly interested in the letter 'Auto-booting disks' from Keith Pattenden in Issue three, but was disappointed with your answer to his question "which directories and files do I need to make my compiled disk run?" I felt that the c/devs/libs/I response was pretty feeble and that we were fobbed off somewhat. How about a more explicit answer that takes us a little beyond startup?

As I write, my Amiga displays the day and date as being Monday 10 June 91. Why won't it respond to my attempts to correct that, ie 1.SYS: HH:MM:SS DD-MMM-YY?

Malcolm Brown
Winchester
Hampshire

I'm sorry, but the answer was the best that we could give under the circumstances. The Amiga has a complex operating system in which

JARGON BUSTING

Intuition – Intuition is the part of the Amiga's operating system concerned with handling windows, menus and so forth. It interprets users' input from the mouse and sends information to the relevant windows via the Intuition direct communication message ports.

lots of programs and files have interdependencies on others. Which of these programs and files need to be present on a boot disk depends entirely on the nature of the user programs to be included on the boot disk. There are so many possibilities that it really is difficult to make generalisations other than to point out, as Mark did, the uses of each of the system directories. The only real answer is to gain a knowledge of AmigaDOS, won by a slow process of trial and error.

The time and date is set from the Shell by means of the DATE command. For example:

```
DATE 12:50:00 25-Jul-91
```

Either of the two parts may be omitted. This date will be forgotten when the machine is switched off. If you have a battery backed-up clock, you can prevent this by using the SETCLOCK command to save the date and time. The line to type is:

```
SETCLOCK SAVE
```

CR

INTUITION STRUCTURES

I am currently having a fairly enjoyable time using the Abacus book *C for Advanced*

Programmers, to explore the ins and outs of windows and screens under the Intuition library routines.

Obviously this involves using a lot of structures defined by Intuition and, of course, when I refer to these structures I have to use the pre-defined names for them. However, when I want to stick pointers to the structures I've been able to call the pointers by any name I like. For example, *NewWindow* has to be referenced by exactly that name, but the pointer I put onto it can be:

```
struct NewWindow *NWPtr;  
or  
struct NewWindow  
*MyNewWindowPointer;
```

or any other name that I choose.

So far so good. This worked well in every case except one. Trouble came when I wanted to open the Intuition library itself, and had to put a pointer to the IntuitionBase structure. I found that the program *Gurued* unless I did the following:

```
struct IntuitionBase  
*IntuitionBase;
```

That line works fine. Any other name for the pointer, such as

```
struct IntuitionBase  
*IBase_pointer;
```

crashed and I can't see why. The pointers are all variables in my program. Why can't I set up a pointer to IntuitionBase and call it what I want to? It was a pig of a bug to find, and I'd like to know if any other sensitivities to pointer names exist.

I am using Lattice C (version 3). Is it the compiler playing up, is it me, or is it the Amiga libraries?

Alun Evans
Ynysforgan
Swansea

This library pointer problem has nothing to do with your compiler – it stems from the things that go on beneath the surface of your C library calls. By convention the 68000's register A6 *must* contain the library base pointer when a library routine is called. Once in place, the library calls are made using an indirect subroutine call which uses the library base address together with a library offset vector (LVO) value used to identify the particular library routine being called.

The reason that the above details never concern the C programmer is because *amiga.lib*, which you'll be linking with, contains the stub code that carries out all the hard work. In general this interface code will pull any required parameters off the stack, place them into the right registers, and then make the appropriate indirect subroutine call. You'll notice that you do not have to explicitly pass the library base address as a function parameter when making a library call, and this is because the stub routines look for, and expect to find, external references to the base pointers. These are resolved at link time and this means, of course, that the C programmer must have declared a suitably named set of global, ie externally visible, library pointer names. It is for this reason that the specific library base names mentioned in the Amiga technical reference books *must* be used by the

continued on page 70

C programmer. This 'sensitivity' therefore applies to all library base pointers. You can get full details from either your compiler documentation or the *ROM Kernel Manuals* but here are brief details of a few of the run-time libraries together with their standard pointer names:

Library	Pointer name
diskfont.library	DiskfontBase
dos.library	DOSBase
exec.library	SysBase
graphics.library	GfxBase
icon.library	IconBase
intuition.library	IntuitionBase

PAO

FIXING THE FLICKER



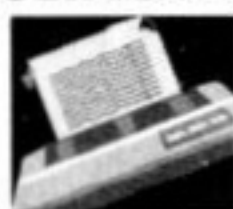
There is a Flicker Fixer for the A500 produced by ICD and sold by Power Computing. Do you know, or can you find out, if this Flicker Fixer is compatible with the ECS Denise and its associated screen modes, as I am considering buying the Flicker Fixer but don't want my £250 to be wiped out when I buy the ECS Denise chip. Incidentally, I do have a multi-sync monitor.

**Dean Aston
Scarborough
North Yorkshire**

I haven't seen the ICD Flicker Fixer but I contacted Power Computing and this is what I was told: it will work with the new Denise and with the new screen modes, provided you have a suitable amount of Chip RAM. Power Computing are a helpful bunch and it wouldn't hurt to give the technical department a ring (☎ 0234 843388) because they'll be able to give you the ins and outs of exactly what has to be done when you upgrade to the new chip.

In general I personally tend to be very pessimistic about all such hardware compatibility issues. If I was in your position I'd also write to the company's technical department stating my concern about possible incompatibility problems. Once I'd got a suitable written reply, and had decided to order the unit, I would specify that the unit was being ordered on the strict understanding that it was, as indicated by the reply, suitably compatible. **PAO**

PRINTER DRIVER FOR SEIKOSHA



I have recently bought a Seikosha SP-200 printer for my Amiga. I am using the Epson X Old printer driver which seems to work fine for text but not graphics. I

have also tried the CBM-MPS_1250 driver but with the same result – great text, just rubbish with graphics. Am I using the wrong drivers, or is it something else?

Also, if (and when) I get Workbench 2, will I be able to use the new 2Mb Agnus chip in my A500? What exactly is the ECS? Is it just a replacement for Agnus or is there more to it than that?

**G Sidaway
Oxshott
Surrey**

As far as the printer goes, just about any driver will work with text – graphics, on the other hand, are a different can of worms altogether. You could try using the CBM_MPS1000 driver, since this will drive IBM-compatible printers. If that doesn't work, check the printer's configuration. The manual will show you how, but it will probably be a set of dip switches. If you have a choice, make sure you set an Epson X emulation and use the CBM_MPS-1250 driver.

ECS stands for Enhanced Chip Set and comprises the Kickstart 2 ROMs, Fatter (1Mb) Agnus and Fat Denise. Paula, the other main custom chip has not changed and Ramsey is only fitted to the A3000. Officially the A500, A1500 and A2000 machines are only fitted with 512K of Chip RAM; 1Mb Chip is fitted to a few of the latest A2000s and A1500s; 2Mb of Chip (and a Super Fat Agnus) is only available with the A3000 machine.

According to Commodore, it is not feasible to fit a Super Fat Agnus to the A500 because it's technically almost impossible. Without going into the pros and cons of the upgrade, it would involve constructing a piggy-back module to fit in the existing socket which carries the extra 1Mb of RAM. At least one hardware developer in the US is believed to be working on such a system, but whether it is of any use remains to be seen. As for the rest of the ECS, unless you have Workbench 2 the extra chips are, quite frankly, a waste of money. **MS**

PARTITIONING DRIVES



I have a B2000 and a Quantum 100Mb hard drive with a Commodore A2091 controller.

According to the A2901 manual, you can have more than one bootable partition, so how do I switch from loading one partition to another during startup? I want Workbench and business packages on one partition and Nico Francois' program selector menu system on another, so that I can use iconless utilities without fiddling around with the CLI.

Also, how do I get some public domain disks which are not Workbench-compatible on to my hard drive so that I can load and boot them at will? Some PD disks do have disk icons, but no other icons. What is the best way of putting them on my hard drive? Finally, are there any good books on hard drives and the A2091 for beginners?

**Robert Hart
Roehampton
London**

In practice you cannot have more than one bootable partition active at the same time, because the highest priority partition will always take over the boot sequence. For instance, if you have a boot disk in DF0: and boot the machine, it starts from the floppy not the hard disk. What you need to do is hand control from the boot partition to a second partition during startup, and this is easily achieved with a few lines of AmigaDOS code. Exactly what you put in there depends on how you have set up your machine.

Here is a typical example of a Startup-sequence which hands control over to a second partition on request:

```
Addbuffers df0: 10
SetPatch >NIL:
Sys:System/FastMemFirst
echo "A2091 Boot transfer"
disk.*n"
ask "Press Y <Return> to get
Workbench or <Return> for
Selector"
if warn
    assign s: DH1:S
    ; Move scripts to DH1
    assign c: DH1:C
    ; move commands to DH1
    assign l: DH1:L
    ; move handlers to DH1
    assign libs: DH1:LIBS
    ; move libraries to DH1
    assign devs: DH1:DEVS
    ; move devices to DH1
    assign fonts: DH1:FONTS
    ; move fonts to DH1
    assign sys: DH1:
    ; move root to DH1
    echo "Booting from DH1:"
    echo >RAM:delme
    "Workbench"
    ; set a temporary flag
endif
BindDrivers
Setclock Load
```

```
FF >NIL: -0
resident CLI L:Shell-Seg
SYSTEM pure add
resident c:Execute pure
resident c:Resident pure
resident c:CD pure
mkdir ram:t
mkdir ram:env
mkdir ram:clipboards
assign T: ram:t
assign ENV: ram:env
assign CLIPS: ram:clipboards
mount newcon:
mount speak:
mount aux:
mount pipe:
Sys:System/SetMap gb
path ram: c: sys:utilities
sys:system s: sys:prefs add
if exists RAM:delme
    LoadWB delay
    ; If required, start
Workbench
else
    run Selector
    ; Start selector here
endif
endcli >NIL:
```

This approach suffers from a few problems – not the least of which is that you have to decide which partition to boot from every time you start the machine. Less importantly, you have to have a complete copy of Workbench on both partitions and the Preferences can only be set from the Workbench partition. As you can see, the deeper you loo, the more involved it gets. If you wish to try this, the following command line will install Workbench on your hard drive's second partition (assuming it's DH1). Boot your machine, open a Shell window and insert your original Workbench disk in the internal drive. Now type:

```
COPY FROM DF0: TO DH1: ALL
```

Although there are books around on hard drives, they all assume a good working knowledge of the system. You could do worse than read *Mastering AmigaDOS 2* volumes 1 and 2 by Mark Smiddy and Bruce Smith. They cover all major AmigaDOS releases in more depth than ever before – volume 1 has four chapters devoted to scripting and startup-sequences which is precisely the sort of things you need to know. They're available from all good bookshops or mail order from our sister magazine *Amiga Format*. **MS**

JARGON BUSTING

ECS – This is short for 'extended chip set', and is the name given to the new versions of the Amiga's custom VLSI (very large scale integration) chips which control the computer's graphics and sound output.

Beginners start here

On the next three pages, technical editor Cliff Ramshaw answers a number of question frequently asked by those new to the Amiga

Having taken your brand new Amiga out of its box and plugged it in, you may well be more than a little bewildered at what confronts you. Although the machine is on the whole easy to use, there are a host of concepts to learn before you can make full use of it. Here we aim to outline some of these fundamentals to save you time and effort in coming to grips with your new machine; but always remember that the best way to learn about the Amiga is to experiment.

WHAT IS A COMPUTER?

A computer is a machine which will follow a set of instructions. It cannot think, but merely does what it is told. The instructions which it follows can come from a number of sources: instructions held internally, from the makers of the computer; instructions from a third-party program which is loaded in from a floppy disk; instructions from you, the user, typed in at the keyboard. The results, known collectively as 'output', are sent either to the screen, to the printer (if you have one) or to the disk in the floppy disk drive.

HOW DOES IT WORK?

Well, without getting carried away... at the heart of the machine is something called the Central

Processing Unit (CPU). This is the bit which interprets the instructions sent to it (in a very simple language called 'machine code') and does what they tell it to. The instructions are held in the computer's memory.

MEMORY

The classic analogy is that of comparing memory to matchboxes. Imagine an incredibly long row of matchboxes, each numbered and each with something inside it. The contents of a memory location can be found or changed by referring to the number of the relevant matchbox, opening it and taking a look (or putting something else in). In practice, all that these matchboxes contain is numbers, but these numbers can be understood by the computer as words, pictures or sound (or indeed they can be kept as numbers). There are two main types of memory: RAM and ROM. RAM (standing for Random Access Memory) can be altered at any time by the computer. Once the power is switched off, the contents of RAM are 'forgotten'. ROM (Read Only Memory), on the other hand, is never changed, even when the power is switched off. It contains the basics of the operating system - the set of instructions which determine the overall behaviour of the machine at all times.

Memory is measured in units known as bytes. In every byte a number between 0 and 255 can be held. To hold bigger numbers, or more complex items of information, bytes are joined together into larger units. More conveniently, memory is spoken of in terms of kilobytes (K) or Megabytes (Mb). A kilobyte is 1,024 bytes; a megabyte is 1,024 kilobytes or 1,048,576 bytes. The reason that they are not nice round 1,000s and 1,000,000 lies in the organisation of bytes according to the rules of binary arithmetic, but that's not important right now...

FAT AGNUS

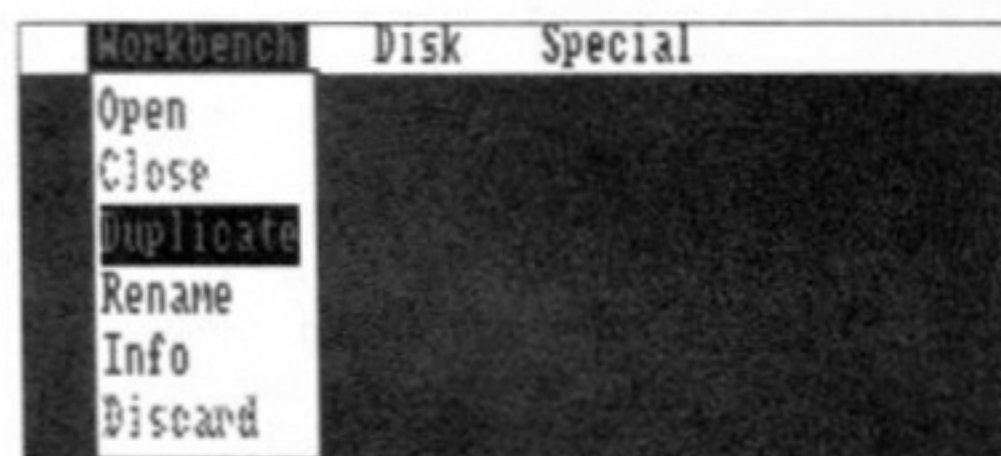
Possibly the most common question we get asked here at *Amiga Shopper* is about the Fat Agnus chip. Agnus is one of several custom chips inside the Amiga dedicated to producing graphics and sound. Whereas the Amiga's central processor can access all of the memory in the machine, the Agnus chip is limited to a much smaller portion, known as Chip RAM (since it can be accessed by the custom chips).

It is here that graphics information must be stored. Anything you see on the screen has an equivalent form inside the Amiga's memory, in Chip RAM, and it is Agnus (amongst others) that does the job of converting this information into the form of a picture.

The rest of the Amiga's RAM (as opposed to ROM) is termed Fast RAM. Whenever Agnus accesses the Chip RAM, it prevents the Amiga's central processor from doing so at the same time. Because much of what a processor does involves

accessing memory, this has a tendency to slow the processor down. Memory which is not Chip RAM, on the other hand, can be accessed by the processor whenever it likes, without a speed penalty. And that's why it's called Fast RAM.

Now, the more Chip RAM, the better, since it means that more complex graphics can be on screen at



The Workbench menu; and someone's about to try duplicating a disk.

once, bigger and smoother animations can be performed and more impressive sound samples used. The early Agnus chips could access 512K of Chip RAM, or half of a megabyte (the amount of memory that comes with an Amiga 500). This chip is numbered 8361, and was present on A1000s and early A2000 machines.

After that came the Fat Agnus, with a shape more like that of a square and a couple of extra features. This is the one in the majority of Amigas. Its part number is 8371 (or 8370 for the American version). Like its predecessor, it can access 0.5Mb of Chip RAM.

In the last year or so, Amigas have been released with an even newer Agnus chip. This is known as the Fatter Agnus, and it can recognise 1Mb of Chip RAM. It has part number 8372a. An even newer version exists, accessing 2Mb of Chip RAM, but this is only available for the new Amiga 3000.

Hope that's cleared things up.

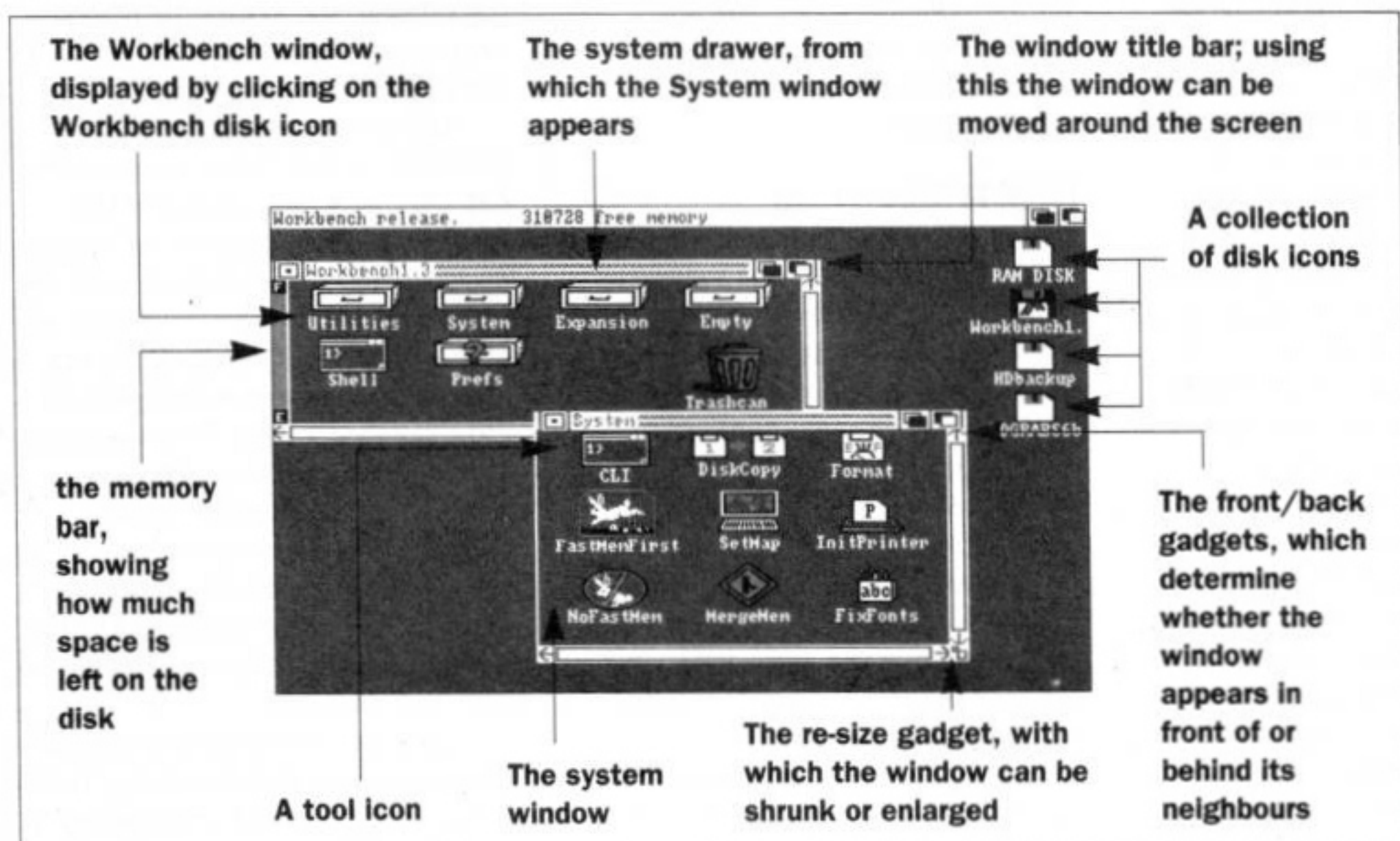
WHAT ABOUT DISKS?

Disks can be thought of as removable memory. The difference is that the processor cannot directly access anything held on a disk. Before it can get its hands on it, the contents of the disk must be 'loaded' into the computer's RAM.

Information is stored on a disk in the form of files. A file is simply a grouping of related information with a name. The information is referenced by using the file name.

AND RAM DISKS?

This is a special kind of 'imaginary' disk drive. You may have noticed that floppy disk drives can be rather slow; the RAM disk is one way around this problem. It works like this: an area of the Amiga's memory is set apart from the rest, and this area is treated just as if it were a disk drive. Information can be stored and retrieved in just the same way as a floppy disk. When a file is loaded



This illustration shows the basic components of the Amiga screen.

continued on page 72

continued from page 71

from the RAM disk, the information is copied from that part of RAM into the Amiga's normal memory where it can be used as normal.

When the Amiga is switched on, the RAM disk is empty and takes no space. As things are placed in it, its size increases as needed. The important thing to remember is that **everything** in the RAM disk will be lost when the machine is switched off or reset.

INFORMATION

Two types of information may be held in memory and on disks. The first type is the information which makes up a program. A program is a collection of instructions for the computer to follow. As well as the operating system, which is nearly always present, the Amiga may have several programs 'running' inside its memory at any one time. These can instruct it to do such things as draw pictures or operate a spreadsheet.

The second type of information is known as 'data'. This is also held in RAM, but instead of providing instructions for the CPU, it provides information on which the programs may operate. For instance, a program which adds two numbers together needs some data before it can be of any use. These two numbers are the program's input data. The result of the addition is the output data. Another example is given by the *Deluxe Paint* package. This is a program. Any key presses or mouse movements you make are input data for the program; the picture that is gradually drawn is the output data. Of course, this picture may be saved on to a disk at any time, and loaded back at a future date. In such a case, the picture has now become input data for the program. As you can see, the distinction between input and output data can become somewhat blurred.

WIMP

In days of yore, people used to control computers exclusively by keyboards. Because of the relatively new WIMP (windows, icons, menus, pointer) system, many tasks can be greatly speeded up and performed in a more intuitive manner (hence the name of the part of the Amiga's operating system that deals with this: Intuition).

All disks, programs and related collections of data are displayed on the screen as small pictures, known as icons. To prevent things getting too cluttered, the screen is divided into small sections called windows, in which the icons relevant to that window are displayed. Each window may be open or closed (in which case it reverts to either a disk or a

drawer icon), moved around relative to the screen, moved in front of or behind other windows on the screen, and resized to display more or less information. All of this may be done by means of gadgets – small graphical symbols around each window's borders that represent these functions. Windows may be nested hierarchically inside each other by means of drawer icons. Whenever a drawer icon is opened, a new window is drawn with its own icons within it.

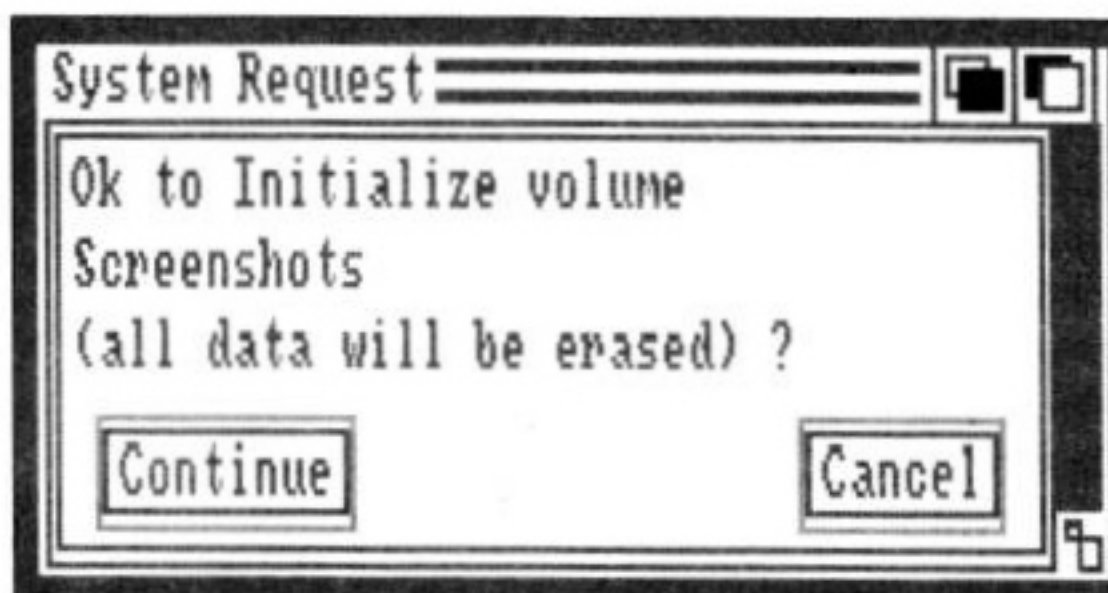
Icons are accessed with the screen pointer, which is moved across the screen by moving the mouse across the desk. Once the pointer is above an icon, that icon can be accessed by pressing the left mouse button twice in quick succession (a process termed 'double-clicking'). The effects of this will vary depending on the icon in question: in the case of a disk or drawer icon, a window will be opened; in the case of a program (or 'tool'), the program will be loaded

can be performed with the mouse and without recourse to the keyboard. When first switched on and with Workbench loaded in RAM (Workbench is the part of the Amiga's operating system which is not held permanently in ROM), a basic set of menus are available which enable you to do such useful things as copy disks and so forth. Most programs have their own custom set of menus, relating to the particular things that the program is used for.

Menus are displayed at the top of the screen. Pressing the right-hand mouse button (and keeping it pressed) reveals the title of each available menu in the white bar at the top. Moving the pointer up to one of these titles (with the mouse button still pressed) will cause the Amiga to display the list of options in a box beneath the title. As the pointer is moved down this box, each of the options will be highlighted in turn. Releasing the right-hand mouse button with one of the options

highlighted will result in that option being executed.

Although not mentioned in the WIMP acronym, another aspect of the system is the 'requester'. A requester is a box that appears on the screen during an operation – usually a dangerous



A system requester, giving a chance to reconsider.

from disk into RAM and run (in other words, the Amiga will start to follow the instructions contained in the program); clicking on a data icon (or 'project') will result in the data's corresponding program or tool being loaded from disk along with the data on which it will begin to operate. The pointer is also used to control a window's gadgets, but in this case the left mouse button need only be pressed once.

A special type of icon that you should be aware of is the 'trashcan' icon. Other icons may be moved inside here by placing the pointer above them, pressing and keeping pressed the left-hand mouse button, and moving the pointer and icon until they are above the trashcan. Releasing the mouse button results in the icon being dumped in the trashcan. The contents of the trashcan can be revealed by clicking on it in the same way as you would click on a drawer icon. The difference is that the trashcan may be emptied, in which case all of its contents are gone for good. Handle with care.

Menus are another innovation of the WIMP system. Menus are a list of options displayed in a text box, selected by means of the pointer. In this way, more complex operations

one such as erasing a disk – displaying a small amount of text and asking the user for what is normally a yes or no reply. In the case of erasing a disk, the text will say 'Ok to initialise volume [name of disk] (all data will be erased)?'. Two gadgets are displayed, one with 'Continue' written in it, the other displaying 'Cancel'. The option you want is selected by moving the pointer over the relevant box and pressing once on the left-hand mouse button.

MULTI-TASKING

One of the Amiga's special features that you've no doubt heard about is multi-tasking. The Amiga is unique amongst home computers in having this feature; in fact it's not until you begin to look at computers very much more expensive than the Amiga that you will normally find such a thing.

But what is it? Basically, multi-tasking is the ability to run more than one program at the same time. This may not seem like a big deal: after all, there is only one of you controlling the thing, and you can't control more than one program at a time. There are advantages to multi-tasking, though.

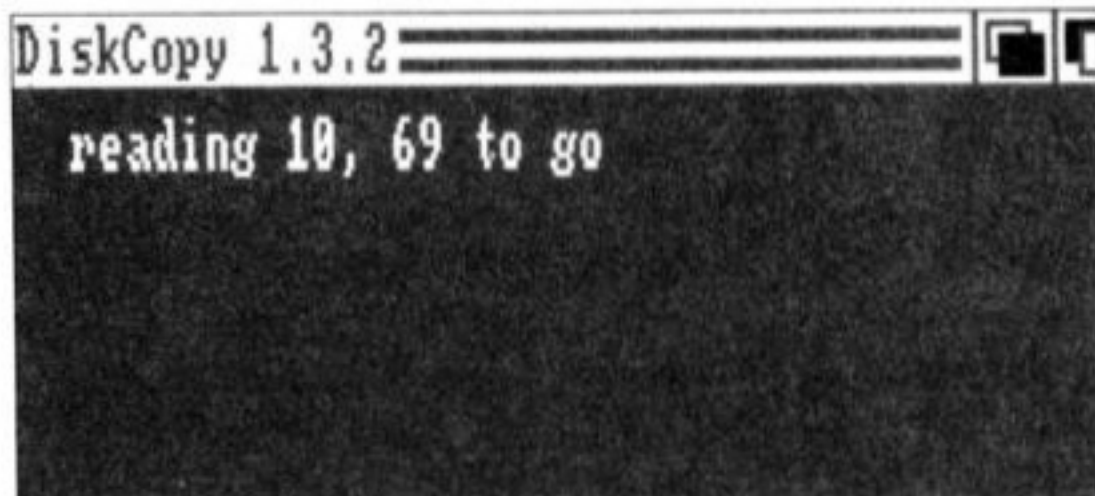
At its simplest, multi-tasking allows several programs to be running in memory, waiting for you, the user, to use them. You can be working on one of these programs, a word processor for instance, and suddenly realise that you need to do some mathematics so that you can put the answers to some calculations in your document. Ordinarily, you would have to quit out of the word processor, load up the calculator program (OK, I'm assuming you don't have a pocket calculator, but you get the idea), do your sums and write down the answers, then quit out of the calculator and load your word processor again, load in your document, find where you were in it and type in the answers from your piece of paper. Quite a hassle. With the Amiga, the calculator could have been waiting in the background all along, eager to help you out. A couple of mouse clicks brings it into action, and you can get your results there and then. Again, a couple of mouse clicks brings back the word processor, exactly where you left it. With more sophisticated software, you will often find that the data can be directly transferred from one program to another, saving you even more work.

Another advantage of multi-tasking is in running programs which require little or no user input. For instance, you could set a Mandelbrot generator (see the supplement which was free with this month's issue if you don't know what one of these is) going, and meanwhile get on with adding up your family accounts or whatever.

Theoretically, there is no limit to the number of programs you can have running at once. In practice, the number is limited by your available memory: each program requires its share. Also, the more programs that are running, the slower the machine becomes overall. This is because of the way multi-tasking works.

The central processor of a machine like the Amiga can only do one thing at a time. A part of the Amiga's operating system known as Exec (for Executive) decides what the processor will do next. It looks at all of the programs running, and gives each of them in turn a little slice of the processor's time. This swapping from one program to another happens so fast that all of the programs seems to be running at once. It's all very clever, especially when you consider that Exec itself is just one amongst the many programs running in this way.

To be fair, there are a couple of disadvantages to multi-tasking. The first is that it is often unnecessary. It can be useful, but more often than not you will want to use your computer



The display you can expect when copying (duplicating) a disk. A disk is divided up into 80 cylinders, most of which have yet to be copied.

for one job at a time. But because multi-tasking is such a complex business, it means that the Amiga's operating system is much bigger and complex than it might otherwise be. And this means that it is more likely to fall over occasionally, which leads us on to the second disadvantage: crashing. On mini and mainframe computers, which as well as being multi-tasking also support several users, each program is well protected from all of the others running at the same time. That way, if one program crashes, the rest can go on unharmed. With the Amiga, though, this is not the case. It is possible for a rogue program to effect any others that may be present. In general, if one program crashes on the Amiga, they all crash and the machine has to be re-booted. If you've been entering your accounts for the last hour and a half when your Mandelbrot program decides to crash, all of your typing will be lost. This is one good argument for saving your work to disk at regular intervals.

COPYING DISKS

One of the first things you should do after unpacking your Amiga is make copies of your Workbench and Extras disks. This also applies to any other disks that you get, although most games and some serious software won't allow you to do this in the interests of preventing piracy.

Copying disks is a good idea because disks have a tendency to get corrupted and lose whatever is stored on them from time to time. Always use the backup copies that you have made, and store the originals in a safe place against the eventuality that your backups fail.

Copying disks on the Amiga is easy, although if you only have one disk drive it can take a little bit of time. In the following description, I'll assume that you only have one floppy disk drive.

First, boot the machine up as normal (this simply means 'switch it on and put in the Workbench disk when you are told to do so'). Then insert the disk that you want to copy. Move the pointer over the disk's icon, and click on it once with the left-hand mouse button. The icon should change colour. Now, using

the right-hand mouse button, go to the Workbench menu at the top of the screen and select the Duplicate option. A requester will appear asking you to replace the Workbench disk. Do this. There is no need to click on the 'Retry' box: the Amiga will realise when you

have inserted the correct disk.

You will then be asked to insert the disk that you want to copy. Having done this, you will be asked to insert the 'SOURCE' disk. Actually, this is exactly the same as the disk that you want to copy. If you are sure you have inserted the right one, click on the Continue gadget in the requester with the left-hand mouse button. The Amiga will start reading the information from the disk, keeping you informed as to how much of the reading it has done and how far it still has to go.

After a time, you will be asked to insert the 'TO' disk. Insert a spare disk, but be sure that there is nothing on it which you want to keep, since all of its original contents will be lost. Once this disk is inserted, click on the Continue gadget. The Amiga will start writing the new information to the disk.

Once this is done, you will be asked to insert the SOURCE disk again. This process of swapping disks will continue until the whole of the original disk has been read and subsequently written to the new disk. After this, the new disk will be named as 'copy of [name of original]'.

It is usually a good idea to rename the disk as something more sensible. To do this, select the disk by clicking once on its icon with the left-hand mouse button, then go to the Workbench menu and select the Rename option. Delete the text of the old name in the box provided, and then type in the name by which you want to refer to the disk. When you are done, press the [Return] key and the whole process is finished.

THE SHELL

Although most things that would ordinarily require a keyboard can be done on the Amiga using the mouse and WIMP system, there are nevertheless hidden depths which can only be accessed by means of good old typing. These functions are performed by using the Shell, which has an icon that looks like a miniature window.

Older versions of Workbench (version 1.2 and below) don't have a Shell. Instead, they have a CLI (standing for Command Line Interface), which works in pretty

much the same way but lacks some of the Shell's more advanced features and is therefore a bit more awkward to use. The CLI's icon looks just like that of the Shell, and may be found in the System drawer of the Workbench disk. If it is not visible, the Preferences icon must be clicked on (inside the Preferences drawer). Once loaded, Preferences will display a screen-full of options, one of which will refer to the CLI. Click on this, and next time you look in the System drawer the CLI will be there, ready to go.

Clicking twice on the Shell or CLI icon will open a text window on the screen. It is generally a good idea to enlarge this window so that it takes up all of the screen, since a lot of text can be generated when you are working here.

A full description of what can be done in the Shell is really beyond the scope of this section, but we'll give you a quick taster. One of the most used commands is the 'directory' command, which gives a list of files (programs and collections of data) on a disk. When the Shell opens, you are presented with a 'prompt' inside the window. This prompt consists of the number of the Shell (more than one can be open at once) and the name of the current disk. In the case of the Workbench disk, this name will be 'SYS:', one of its many names (just to keep life simple). In the Shell, the names of all disks are followed by a colon (':'). At this prompt, type the word 'dir' and press

the [Return] key.

The disk will whirr, and you will be given a list of all of the files on the disk. You may be surprised to find that there are a lot more files than there are icons when viewed from an ordinary window. For a file to be shown as an icon, it must have a corresponding file with the same name but followed by the characters '.info'. This second file contains information about the icon, such as what it looks like, what kind of file it represents, and where on the screen it should be displayed.

Some filenames have the characters '(dir)' after them. This is not part of the name, but an explanation that the file in question is not a file at all but a directory. A directory is exactly the same as a Workbench drawer. Things are held within it. For example, on the Workbench disk there is a directory called 'c' (standing for 'commands'). This is not visible except from the Shell, because there is no corresponding 'c.info' file and therefore no icon. To find out what is in this directory, type 'dir c' and press [Return]. What is displayed is a list of files. In this case, each of them is a program which you can run by typing its name in at the Shell prompt. If you look closely, you will find a command called 'dir', which is the one you have been using to look at the Workbench disk's contents. For more information about the Shell, check out Mark Smiddy's monthly AmigaDOS column. **AS**

IN NEXT MONTH'S ISSUE...

Every month in *Amiga Shopper* we print 16 pages of *Amiga Answers* – answers for everyone from beginners to experts. If you have a question, fill in the form on page 50 and pop it in the post to us.

Amongst the questions we intend to answer in next month's issue are the following:

- "How can I use a Sony 3.5-inch disk drive with my Amiga 500?"
- "Can you tell me how well the public domain Commodore 64 emulator works – how compatible is it likely to be with my software?"
- "Can I adapt a colour Olivetti monitor to work with my Amiga?"
- "I would like to superimpose Amiga graphics over video footage of the Empire State Building. How can I do this?"
- "I'm having trouble printing out listings from the Amos Basic

Interpreter. Can you shed some light on this for me please?"

- "I would like to keep records of my family tree, and I want to use Superbase Personal to do it. Any tips which you could give me would be greatly appreciated."

- "I'm puzzled. What exactly is AMOS, and what can I do with it?"

- "Can you tell me, please, what the Gary chip is and what it does? Why do I have to connect my Megaboard to it?"

- "I want to use my Amiga for business accounting. Can you give me any suggestions of the type of programs I should be considering?"

- "I want to write an AMOS program to create crossword puzzles but I don't know how to go about it. Can you help?"

- ...and much, much more!

User groups list

If your group isn't mentioned, fill in the form at the bottom of the page to let us know about you

1520 Plotter Group (ICPUG) Contact John Bentley ☎ 06286 65932.

Amigaholics Club For beginners and some experts. Free membership. Own disk magazine. Contact Kevin Bryan ☎ 071-580 2000 Ext 240 or write to 29 Wolfe Crescent, Charlton, London SE7 8TS.

Amiga Artists Club 34 Roundhay Mount, Leeds LS8 4DW. A club for Amiga artists, musicians and coders for mutual assistance and programming demos. No pirates, genuine Amiga artists only. Membership is free, contact KAM on ☎ 0532 493942, 5pm-8pm.

Amiga Beginners' Club 110 Whitehill Park, Limavidy, Co. Londonderry, BT49 0QG. A club to help newcomers to the Amiga. There is a bi-monthly club disk, and a small PD library. Membership costs £2 for a single disk, or £20 for every issue.

Amiga Users Klub, Windsor House, 19 Castle Street, Bodmin, Cornwall PL31 2DX. Meets every Friday from

6.30-9pm, to expand members' knowledge of Amiga computing and to help solve people's problems. Contact Jack Talling.

Amiga Witham Users Group 85 Highfields Rd, Witham, Essex CM8 1LW. Distributes tips and Basic programs. Keith Anderson ☎ 0376 518271.

Anglesey ICPUG Meets every Monday 6pm-9pm at Holyhead Unemployed Workers Club. All machines from C64 to Amiga. Contact Nick Massey ☎ 0407 765221.

Ayr ICPUG Meets at Radix Training Centre, West Sanquhar Road, Ayr. Contact John Smith ☎ 0292 261408 Ext 202.

Basic Programmers Group 68 Queen Elizabeth Drive, Normanton, West Yorkshire WF6 1JF. Set up to encourage the use of Basic, exchange ideas and assist beginners to the language. Free newsletter from Mark Blackall ☎ 0924 892106.

Bury St. Edmunds ICPUG Contact Alan Morris ☎ 0359 51446.

Buxton ICPUG Contact Peter Richardson ☎ 0298 23644.

Chester-le-Street 16 Bit Computer Club Conference Room 2, The Civic Centre, Newcastle Road, Chester-le-Street. The club meets every Monday from 7.30-9.30pm to see each others' software collections, exchange advice and tips. Contact Peter Mears ☎ 091-365 2939.

Club Amiga 5 Bowes Lea, Shiney Row, Houghton Le Spring, Tyne and Wear DH4 4PP. Membership costs £15 a year for a disk magazine, PD software and a 24-hour telephone helpline service (091-385 2627). For more information send an SAE to Chris Longley.

Computer Club 16 Laton Road, Hastings, East Sussex ☎ 0424 421480. This is a 16-bit club dedicated to being computer enthusiasts without being pirates. Membership costs £15 per year, and the club has arranged discounts with several local firms.

Coventry ICPUG Meets on the first Wednesday of the month. Bring your computers. Contact John Orange ☎ 0203 689635.

Disabled Group (ICPUG) Contact David Bate, 71 Bedford Road, Bootle, Merseyside L20 7DN.

Dublin ICPUG Meets fortnightly on Fridays (except August) at St. Andrews College. Covers all Eire, 36 page newsletter. Discounts arranged. Contact Geoffrey Reeves ☎ 010 353 12 883863.

Dundee ICPUG A new group which hopes to meet at Bits and Bytes, 21b Commercial Street, Dundee. Contact Dave Thonton ☎ 0382 505427.

Edinburgh ICPUG Contact Martin Lowe, Amiga Centre Scotland ☎ 031-557 4242.

Genealogy Group (ICPUG) Contact Steve Turner, 27 Burley Close, London SW16 4QQ.

Independent Commodore Products Users Group Biggin Hill Library, Church Road, Biggin Hill, Kent. Meets most Thursdays from 7.45-9.45pm. There are lecture nights and open nights where members can get

help. See also regional entries. Contact John Bickerstaff after 8.30pm ☎ 081-651 5436.

Macclesfield ICPUG Meets at The Harlequin Club, Chestergate, Macclesfield, every Tuesday from 8-11pm. Contact Peter Richardson ☎ 0298 23644.

Mid-Thames ICPUG Meets at Cox Green Community Centre, SW of Maidenhead, on the second Thursday of the month at 7.30. Open nights and some talks. Newsletter. Contact Mike Hatt ☎ 0753 645728.

Slim Agnus 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW. Meets on the last Thursday of the month. PD library, bulletin board, advice from Amiga experts. Contact Philip Worrel.

Software Exchange Service 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY. Offers a forum for exchanging old, unwanted games for a small price. Contact Michael Pun on ☎ 021-459 7576.

Solent ICPUG Meets at GEC Aerospace Sports and Social Club, Titchfield, Hants, first Tuesday of the month at 7.30. Open nights and some talks. Contact Anthony Dimmer ☎ 0705 254969.

South West ICPUG Meets second Sunday of the month at Queens Arms Hotel, Charmouth, Dorset, at 10am. Bring your computers. Some talks. Contact Peter Miles ☎ 0297 60339.

Stevenage ICPUG Meets at Hertford Road Community Centre, Stevenage, last Friday of the month at 7.30pm. Contact Bob Grainger ☎ 0438 727925.

The Pennine Amiga Club 193B Oakworth Road, Keighley, West Yorkshire BD21 1RE. Offers free membership, free advice, and circulates a newsletter. Contact Simon Booth ☎ 0535 600437.

Watford ICPUG Long standing club with friendly atmosphere. Meets third Wednesday of the month, 7.30pm St Thomas Church Hall, Watford. Membership £12. Contact Rod Eva/Mark Pryor ☎ 0923 50161.

West Riding ICPUG Meets at the White Horse Inn, Fall Lane, East Ardsley, Wakefield, first and third Tuesdays at 7pm. Open nights. Minibus to London shows. Contact Kevin Morton ☎ 0532 537318.

Wigan ICPUG Contact Brian Caswell ☎ 0942 213402.

GET YOURSELF LISTED

If you run a user group which isn't listed on this page, fill in the form below for your free entry. Send it to **Amiga Shopper User Groups List, 30 Monmouth Street, Bath BA1 2BW**. We reserve the right to refuse entries.

Group name

Contact name

Contact telephone number.....

Contact address.....

Place of meetings

Time of meetings.....

Type of activities.....

Membership fee..... AS6

Announcing...

POOLSWINNER

THE POOLS PREDICTION PROGRAM

Gold

WITH ARTIFICIAL INTELLIGENCE

- THE LEGENDARY POOLS PREDICTION AID, Poolswinner, now has artificial intelligence. The latest version of the program, Poolswinner Gold, has the power to learn from the results of its own predictions, constantly adjusting the prediction formula to improve performance.
- AUTOMATIC FIXTURE GENERATION: Fixtures for English and Scottish League matches are generated automatically by Poolswinner Gold, which now incorporates its sister program FIXGEN 91/92 (yearly updates are available from Selec).
- MASSIVE DATABASE 22000 match database over 10 years.
- PREDICTS SCOREDRAWS, NO-SCORES, AWAYS and HOMES Predictions are based on many factors... recent form, the massive database, league standing, goal scoring rates, and draw averages. The user can adjust all parameters.
- SUCCESSFUL Selec guarantee that Poolswinner performs significantly better than chance.
- LEAGUE AND NON-LEAGUE matches are covered. Can be used for the non-league and amateur matches so often on the coupon now.
- FULL LEAGUE TABLES (home & away) are automatically generated by the program as results come in.
- UPDATED WEEKLY. Poolswinner Gold is supplied fully updated with all league results from the start of the season - its ready for immediate use.
- PACKAGE CONTAINS disc, detailed operating manual and support literature, all you need to start forecasts immediately.



£36.50

Also available from Selec ...

COURSEWINNER V4 £36.50

THE PUNTER'S COMPUTER PROGRAM. Uses artificial intelligence. Uses past form, going, distance, speed ratings, prize money etc. Contains British course statistics - best jockeys, trainers, draw effect etc. Detailed analysis of all runners in a race, with profit. Sophisticated aid to successful betting, with a long pedigree.



POOLS PERM PLUS £32.50

Perm analyser and checker, complete with 5 years of coupon results and popular perms for analysis. Checks your weekly entry for winning lines, or tests your theories on results over the last 5 years. Reveals all the weeks a bet would have won, and the probable dividend.

FOOTBALL FOLLOWER £32.50

Statistical analysis for Football enthusiasts. Tables, fixture lists, sequences etc. Set up for British League football, but can be set up by the user for any league - amateur etc. Ideal for all fans, league secretaries etc.

All programs are supplied on disc, packaged with detailed instruction manual, and support literature. Formats available:
IBM (3.5" or 5.25")
AMIGA
ATARI ST
AMSTRAD PCW
Prices are inclusive of VAT & delivery

Send cheque / PO
for return of post service to ...

Selec Software (Est. 1984)
62 Altrincham Rd, Gatley, Cheshire SK8 4DP
(send for full list of our software)

VISA
Tel 061-428-7425
Phone or FAX 24 hrs

Free PD Software
Six 100 Page Magazines
Technical Advice - Discounts
Send SAE for details to Jack S.
Cohen PO Box 1309 London
N3 2UT only £17 per year including
joining FEE of £1 - We support all
Commodore Machines with
software for each - Back issues for
1990 £2 each - Overseas
prices on request

ICPUG

CALL
081-346-0050
after 6.00pm

MAKE YOUR

AMIGA

EARN!

Yes making money with your Amiga becomes incidental when you know how. Your micro is, if only you knew it, a gold mine. The size and make is irrelevant. Make the initial effort NOW by starting your own

HOME BASED BUSINESS

This may be the most important move you will ever make!

REMEMBER: You'll never get rich by digging someone else's "ditch". Anyone in the country, including YOU, can become very rich in a relatively short period of time just by doing a few basic things! It's more rewarding than playing games. The benefits are many and varied. Full or part time. For FREE details send S.A.E. to:



HOME BASED BUSINESS

31, PILTON PLACE (AS 6)
KING AND QUEEN STREET,
WALWORTH, LONDON SE17 1DR

AUTHORISED DEALER FOR * AMIGA * STAR *

AMIGA (UK MODELS ONLY)

Amiga 1500: B2000 + 1084SD + Twin Floppies + Software	£899.00
as above without monitor	£649.00
XT Bridgeboard + 5.25" Drive + MSDOS 4.01	£199.00
AT Bridgeboard + 5.25" Drive + MSDOS 4.01	£639.00
Supra 8Mb RAM Board Pop 2Mb	£179.00
Supra 8Mb RAM Board Pop 4/6/8Mb	£269/£359/£449.00
A500 CARTOON CLASSICS Pack INCLUDING 512K RAM/CLOCK	£369.00
A500 Base Pack	£319.00

PRINTERS

Citizen 120D+	£135.00
Star LC-20	*** NEW *** £149.00
Star LC-200 Colour	£199.00
Star LC24-10	£185.00
Star LC24-200	£229.00
Star LC24-200 Colour	£289.00
Star XB24-200 24 pin Colour	*** NEW *** £421.83
Star LaserPrinter 4 Postscript	£1126.83
Okimate 20 ribbons/heads/paper	PHONE

MONITORS

Commodore 1084S Stereo	£259.00
Philips 8833-II Stereo Colour	£249.00

DISK DRIVES

A590 Autoboot 20Mb	£289.00
A2000 Internal 3.5"	p&p £2 £69.95
A500 Replacement Internal 3.5"	p&p £2 £69.95
Roctec Super Slim Amiga Ext. 3.5" Metal Cased	p&p £2 £59.95

MISCELLANEOUS

Amiga 2630 Co-Proc with 2Mb 32-bit RAM	£899.00
Golden Image Hand Scanner A500/2000 + S/W	p&p £2 PHONE
Golden Image Opto-Mechanical Mouse	p&p £1 £22.95
KCS PC Board for A500 inc MSDOS 4.01	p&p £2 £219.00
A500 RAM/Clock 512Kb with Disable Sw	free p&p £37.00
RAM Chips for A590/2091 per 512Kb	free p&p £22.50
A500 Compatible Power Supply	free p&p £49.00
Kickstart V1.3 ROM for A500/2000	free p&p £29.00
1Mb Fat Agnus 8372A	free p&p £75.00
CIA Chip 8520	free p&p £16.00
RGB Composite Video Splitter	free p&p £69.95
Rendale 8802 Genlock	p&p £2 £159.00

ALL PRICES INCLUDE 17.5% VAT CARRIAGE £5 (EXPRESS £10)
Prices subject to change without notice E & OE

Star Buys for Amiga 1500/2000

Supra WordSync 2000 Drives

52Mb Quantum LPS 17ms with 64Kb Cache	£319
80Mb Seagate 24ms access time	£399
105Mb Quantum LPS 17ms with 64Kb Cache	£459

Interquad Multiscan Monitor

0.28mm Dot Pitch Max Resolution 1024x768	£329
Flicker Fixers: Microway	£145
Commodore A2320	£219

SupraRAM 500RX 2Mb

Free Skts for exp
to 8Mb
£199

Accelerators for A500/2000

25MHz	£269	40MHz	£399
25MHz + Ptg Pt Unit			£399

ALL PRICES INCLUDE 17.5% VAT CARRIAGE £5 (EXPRESS £10)

Prices subject to change without notice. E. & O. E.

Delta Pi Software Ltd

8 Ruswarp Lane, WHITBY, N. Yorks YO21 1ND
TEL/FAX: 0947 600065 (9am - 7pm)



Cracking the



"Commodore's supplied startup-sequence is generalised for all machines, but it can be improved - here's how..."

Mark Smiddy

With metaphorical screwdriver in hand, Mark Smiddy shows you how to tune your Amiga's startup-sequence for the best possible performance

boots itself up. The startup-sequence does just about everything from speeding up the text display to improving disk access, before finally activating the Workbench itself.

An important concept to grasp here is that Workbench is shared between the ROM (Kickstart) and the command line interface, or CLI (AmigaDOS) and can be activated very quickly if necessary. When the machine 'boots', several things happen automatically without you even being aware of them. In simplified terms, the sequence of events occurs roughly like this:

In last month's AmigaDOS pages I introduced and dissected the Workbench 1.3 startup-sequence script. Just to shake out the cobwebs, the startup-sequence is a script used to configure the machine every time it

basic (CLI) interpreter and disk handling is all ROM-based.

- At this stage AmigaDOS automatically makes a number of directory (logical device) assignments (see the table below).

When this has been done, Intuition asks AmigaDOS to look for a file in DEVS: called 'System-configuration'. If found, the file is loaded and passed to Intuition where it is used to set the preferences: screen colours, pointer style, default printer and its setup and so on. If the system-configuration is missing, Intuition sets the default preferences. This is most noticeable if you normally work with different colours or an 80 column screen - since the default is a blue screen with 60 columns.

- And now... the Workbench screen and default CLI windows open and the CLI announces itself: AmigaDOS ©1987 Commodore-Amiga Inc. etc. Even though a lot has happened behind the scenes, this only takes a couple of seconds. The laborious part comes next as AmigaDOS searches the S: assignment for the startup-sequence file - the subject of this discussion. The startup-sequence is loaded from disk and executed like any other AmigaDOS script - but it takes a long time because of all the disk accessing involved as command after transient command is loaded and executed.

REDUNDANT STARTUPS

A lot of the 1.3 startup-sequence is redundant. This may seem odd, but you have to remember that it has to cope with dozens of different possible configurations. Individual machine configurations tend to remain static once you have passed the initial "What can I buy next?"

- Kickstart puts the machine through a self-test to ensure that everything seems OK. This happens as the machine cycles through the shades of grey and the 'Caps Lock' light on the keyboard flashes.

- If all goes according to plan, the ROMs then start searching for a bootable device in the following order of priority: df0: (the internal disk drive) is checked first, then in Kickstart 1.3 only, the rad: disk is next, and then finally the hard disk is checked. (Presumably the CD drive will have the same priority as a hard disk - we'll just have to wait and see.) Kickstart 2 owners may notice that the machine also searches other floppy drives and tries to boot from those too. In this case, a bootable device means a disk drive with a disk inserted.

- If a boot disk is found, Kickstart loads and executes the bootblock from track zero. This, incidentally, is how many viruses get into the machine. A normal boot code then activates and hands control back to the ROM-based AmigaDOS code. AmigaDOS lives partly in ROM and partly on disk. The commands you execute come from disk, but the

Below: The table shows what the different logical device assignments which AmigaDOS makes during booting actually point to.

An improved 1.3 startup-sequence

```
1. Addbuffers df0: 10
2. SetPatch >NIL:
3. echo "A500/A2000 Workbench disk. Release 1.3 version AS1*N"
4. Sys:System/FastMemFirst
5. BindDrivers
6. Setclock Load
7. FF >NIL: -0
8. resident CLI L:Shell-Seg SYSTEM pure add
9. resident c:Execute pure
10. resident c:Resident pure
11. resident c:CD pure
12. mkdir ram:t
13. mkdir ram:env
14. mkdir ram:clipboards
15. assign T: ram:t
16. assign ENV: ram:env
17. assign CLIPS: ram:clipboards
18. mount newcon:
19. mount speak:
20. mount aux:
21. mount pipe:
22. Sys:System/SetMap gb
23. path ram: c: sys:utilities sys:system s: sys:prefs add
24. LoadWB delay
25. endcli >NIL:
```

Assignment:	Points to:
C:	The C (command) directory
DEVS:	The Devs (devices) directory
FONTS:	The Fonts (type styles) directory
L:	The L (handlers) directory
LIBS:	The Libs (libraries) directory
S:	The S (scripts or sequences) directory
SYS:	The root (first) directory
T:	The T (temporary) directory

Shell

phase, and it is this which will allow you to customise your startup to best suit your needs.

The original startup-sequence goes through no less than 37 separate steps including multi-tasking a second CLI – this is grossly inefficient and can be directly replaced with the listing on page 76. Before examining it step-by-step you can see the major change has been the removal of the 'StartupII' sequence (refer back to last month's column if you can't remember what StartupII did). It's still there, only it has now been added to the main startup-sequence script. For the sake of keeping things simple, this startup performs the same actions as the one supplied by Commodore but uses just 25 steps to do it. The version for 1Mb machines is stripped down even further and is not suitable for some types of expansion hardware. Here's how they work:

Improved 1.3 startup-sequence

- 1:** Allocates 2.5K of memory for disk buffers for the internal drive.
- 2:** Patches the system bugs. This must always be present!
- 3:** Announces the Workbench disk. The version number has been changed here to indicate this is not a Commodore supplied startup. This line can be removed or edited to personalise each disk if required.
- 4:** Configures EXEC to allocate Fast memory first if some is fitted. If you only have 512K (or less) or if you have 1Mb and a fatter Agnes this line can be discarded.
- 5:** Attaches certain types of hardware to the system. If you need this command, there will be an icon or icons in the Workbench's Expansion drawer. If the expansion drawer is empty, this line can be safely removed.
- 6:** Sets the system time and date from the real-time clock. If you have an A500 with only 512K or your expansion memory does not have a clock this line can be deleted. Note: a rare bug in the system fails to read the 'last used' time and date from some hard disks and this can cause curious bugs with commands such as DATE and LIST. If you have a hard

disk attached and no real-time clock, use DATE instead. (Typically the format will be DATE 01-Jan-91).

- 7:** Activates Charlie Heath's FastFonts program to speed up text flow in windows. This also gives you a chance to change the default system font, more of which shortly.
 - 8:** Loads the resident part of the Shell. This only makes the Shell available for later use – it has no effect on the current (startup) CLI.
 - 9-11:** Makes 'resident', 'execute' and 'cd' resident. The resident 'execute' is a hangover from the original startup and is preserved here for consistency.
 - 12-14:** Creates the T, Env and Clipboards directories in the ram: disk...
 - 15-17:** ...which are assigned to T:, ENV: and CLIPS: respectively here. T: is an automatic assignment and is placed in RAM: for speed of access. Note how the 'mkdir's and 'assign's are grouped together to save on disk access even when a very small cache buffer is active.
 - 18-21:** Mounts 'newcon:', 'pipe:', 'speak:' and 'aux:'. The newcon: device is required for Shell windows – the others are application-specific but are retained for compatibility.
 - 22:** Changes the default keymap (keyboard layout) to mirror the setup on British machines. This command may be omitted in some countries, and other countries may require a different keymap.
 - 23:** Sets the default paths for the Shell so Workbench commands can be accessed easily.
 - 24:** Activates the Workbench with a short delay. This allows the disk activity (caused by ENDCLI loading) to complete before it starts looking for mounted disks.
 - 25:** Closes the default CLI window.
- ### 1Mb startup-sequence
- In essence, the startup-sequence for 1Mb machines shown on the right is very similar to the first – except that this one works better on later

JARGON BUSTING

- Devices** – Software device drivers that provide a common interface between the Amiga's operating system and the external hardware. For instance, the serial interface is controlled by the 'serial.device', while the printer is controlled by the 'printer.device' and, usually the 'parallel.device' too. Devices are closely related to libraries (qv).
- Fatter Agnus** – Agnus is one of the custom chips that help to make the Amiga so special. The Fat Agnus is responsible for handling the display, among other things, and can only access 0.5Mb of RAM – the so-called Chip RAM. Later machines are sometimes fitted with the Fatter Agnus which supports a full 1Mb. (The A3000 has a Super Fat Agnus which can access no less than 2Mb of Chip RAM!)
- Handlers** – These are similar to device drivers but operate at a much lower level and are usually accessed by the 'mount' command via the Mountlist. Way too complex to worry about, handlers are responsible for such heady things as the RAM disk and extra filing systems.
- Libraries** – These are collections of functions to control various parts of the system and perform certain tasks. Many libraries are built in to Kickstart already, and the disk-based ones are provided as transient extensions – that is, they can be loaded and removed as required by the Amiga.
- Wetware** – A gross Americanism for the human brain.

machines with 1Mb or more fitted. In order to avoid needless repetition, let's just take a look at the changes:

- 1:** The number of buffers allocated to the internal drive has been increased from 10 to 22. This speeds disk access a little during normal use, but has little effect on the startup.
- 2:** SetPatch has had the 'R' option added. This is used to protect the

RAD: (reset-proof RAM disk) device when the machine has a fatter Agnus and an A501 0.5Mb RAM expansion fitted. Also, the '>NIL:' sink has been removed so you can see exactly which functions have been patched.

- 3:** As in step 2, the ">NIL:" display sink has been removed to allow FastFonts to display its copyright message. The reason for doing this will be discussed later.

continued on page 78

A startup-sequence for 1Mb machines

- 1.** Addbuffers df0: 22
- 2.** SetPatch -R
Sys:System/FastMemFirst
Setclock Load
- 3.** FF -0
resident CLI L:Shell-Seg SYSTEM pure add
mount newcon:
resident c:Resident pure
resident c:CD pure
mkdir ram:t
mkdir ram:env
mkdir ram:clipboards
assign T: ram:t
assign ENV: ram:env
assign CLIPS: ram:clipboards
Sys:System/SetMap gb
path ram: c: sys:utilities sys:system s:
sys:prefs add
LoadWB delay
endcli >NIL:

continued from page 77

In addition to those fine adjustments, several commands have been removed completely. In particular, the 'speak:', 'aux:' and 'pipe:' devices are no longer mounted during startup. These are rarely used outside AmigaDOS and can be explicitly mounted if required. Also, 'BindDrivers' has been removed since it has no effect on most machines – likewise Commodore's copyright message.

GOT A PROBLEM, JOHN?

If you get stuck with AmigaDOS or if there is anything specific you would like to see covered here, drop a line detailing your conundrum to: Mark Smiddy, Amiga Shopper, 30 Monmouth Street, Bath BA1 2BW. Sorry, no personal correspondence can be entered into. Desperate people with no regard for telephone bills can e-mail me on CIX as 'smidoid' or find me lurking in the 'amigashopper' conference.

DISK DRIVES...

Those two example startups are just provided to get you going. In practice, you can chop and change the startup-sequence at will to get the best from your machine and the

peripherals attached to it. The two most common will be a second disk drive and, in the case of the A500, a RAM expansion.

If you use the external drive for extra commands or file storage then allocating some cache buffers will be an advantage. (Note that cache buffers will have no effect if you only use the external drive for launching applications. This is because the cache gets repeatedly filled with new data and never gets chance to hold anything.) The command to add for A500 and A2000/3000 machines respectively is:

```
ADDBUFFERS DF1: 20      ↵
; Add some buffers for an A500
ADDBUFFERS DF2: 20      ↵
; Add some buffers for an
A2000/A3000
```

You can add as many or as few buffers as you see fit, but values between 10 and 25 tend to give the best effect. Remember, too, that this RAM is taken from the free memory pool, so the more buffers you allocate, the less free memory you will have to work with. Cache RAM for the hard disks is controlled by the Mountlist – more of which in a later instalment of the series.

...DEVICES...

Amiga devices can be grouped into three basic types: physical hardware, software emulations and directory assignments. All devices have one thing in common – they are accessed by their name with a colon

appended, so df0:, ram:, rad:, prt:, con: and fonts: are typical examples. Most devices can be written to, a few can be read from and some can be scanned (have directory listings taken of them).

Most devices are mounted (attached to the system) during the boot sequence long before AmigaDOS gets control, and some (hard disks under Kickstart 1.2, for instance) are mounted by BindDrivers. But several need to be explicitly mounted. For instance, if you intend to use the Shell you must

BLITS

The startup-sequence can be stopped at any time you wish by holding down the [Ctrl] key and pressing [D].

& BOBS

mount the 'newcon:' device somewhere in the startup. The others listed here are optional and can usually be mounted later.

AUX: Provides unbuffered serial I/O for read and write. AUX: can be used as a window parameter for NEWCLI and NEWSHELL to provide a simple form of multi-user system.

PIPE: Offers a simple FIFO piping system for passing messages between CLIs and can be used as a small temporary storage area.

SPEAK: Is a device entry to the Amiga's speech system. Copying text to this device is a simple way to make the Amiga talk.

...AND ASSIGNMENTS

The assigns are related to the devices because they work in much the same way – at least at CLI level. Three assignments are made in the 1.3 startup – T:, ENV: and CLIPS: and, although these are optional, it is a good idea to leave them as they are. Briefly here's what they do:

T: Is the most important of these three. It is used by EXECUTE to create the temporary command files used when parsing scripts. T: is often shared by script programs to store temporary variables and files.

ENV: Was introduced in the Workbench 1.3 release as a temporary measure to support environmental variables – the AmigaDOS equivalent of preferences. ENV: is not widely supported in software and can be used by user script programs.

CLIPS: Is reserved for the clipboard.device (located in the DEVS: directory) and is used as a temporary area for storing data cut by applications. This is supposed to be a shared area but the practice remains to be widely adopted. The idea comes from the Macintosh platform, where it works extremely well and is supported by virtually every application available. **AS**

SMIDDY'S RED HOT TIPS

This feature is all about startup-sequences, so it seems only right that the tips should be tailored to help you get the best from yours.

• First off, how many times have you mis-typed 'ED S:Startup-sequence'? This has to be one of the most difficult sequences of letters to get your pinkies round yet invented, so to kick off here are two ALIASes to get you going quickly. Add these to the Shell-Startup script (making sure you enter them correctly) and editing startups is a lot simpler:

```
ALIAS EDS ED S:Startup-sequence
ALIAS FRED ED DF[:S/Startup-sequence
```

The first one, EDS, is used to edit the startup on the disk you booted from and this is the one you'll probably use most – just type EDS to get going. The second one, FRED, is useful for editing the startup on other disks. To use it just type FRED and the number of the drive whose startup you want to edit – for example,

```
FRED 1; edit startup on drive one
```

• To get the best effect from FastMemFirst, you will need to know if you have a Fatter Agnus or a plain old Fat one. Assuming you have at least 1Mb of RAM (Fatter Agnus makes no difference on 0.5Mb machines) you can use the AVAIL command to find out. AVAIL is used to determine the amount and fragmentation of the current memory but for our purposes we need to know how much Chip RAM is fitted. AVAIL has the following synopsis:

```
AVAIL [TOTAL|CHIP|FAST]
```

This means that the command can take either no options or any one of the

three switches ('TOTAL', 'CHIP' or 'FAST'):

TOTAL: The total amount of memory currently available.

CHIP: The total amount of Chip memory currently available.

FAST: The total amount of Fast memory currently available.

A word of caution here. Because of the multi-tasking nature of the machine, where memory is constantly being allocated and freed, AVAIL only supplies an instant 'snapshot' of the memory available at any one time and should only be used as a guideline.

Used without arguments, AVAIL supplies the most useful information. Typically, when used in this way the AVAIL command behaves in the following way:

AVAIL

Type	Available	In-Use	Maximum	Largest
chip	396328	126904	523232	385112
fast	2344216	269792	2614008	1933352
total	2740544	396696	3137240	1933352

This machine is an A500 fitted with 3Mb of RAM but the old (Fat) Agnus chip. The values to watch are the maximum amounts of Chip and Fast memory. If the machine is fitted with a Fatter Agnus and a trapdoor RAM expansion there would be approximately twice as much Chip RAM listed. Similarly, if the machine is fitted with 1Mb and a Fatter Agnus there will be no Fast RAM available.



FERGUSON SMITH

14 Dowanside Road Glasgow G12 9DA

FLOPPY DRIVES

STA1	A500	3.5"	External	£54.95
STA2	A500	5.25"	External	£89.95
ES667	A500	3.5"	Internal	£67.95
FA103	A500	3.5"	GOLEM Ext. + Track Display	£74.95
FA106	A500	5.25"	GOLEM Ext. + Track Display	£119.95
FA104	A2000	3.5"	GOLEM Internal	£65.95
FA107	A2000	5.25"	GOLEM Internal + Track Display	£89.95
FA109	A500	3.5"	GOLEM Double Drive	£119.95

A500 RAM EXPANSION

STA3	A502	512 Kb with clock & switch	£31.95
STA4	A580	1.8Mb board incl. 512Kb	£62.95
STA5	A580	1.8Mb board incl. 1.8Mb	£119.95
STA6	A580	Plus 2Mb board incl. 2Mb	£132.95
ES219	SUPRA	A500RX 8Mb board incl. 2Mb	£179.95
ES819	SUPRA	A500RX 8Mb board incl. 8Mb	£475.95

A2000 RAM EXPANSION

STA10	NEW MEGA MIX	8Mb Board	
STA12	With 2Mb installed		£147.95
	With 8Mb installed		£339.95
	With 0.5/1/4Mb		P.O.A.

A500 HARD DRIVES

HA121	Quantum	52Mb with above controller	£549.95
HA122	Quantum	105Mb with above controller	£699.95
HA123	SCSI II/RAM/Kick Combi Controller		£249.95

A2000 FILECARDS SCSI II

HA110	Quantum	52Mb	£429.95
HA112	Quantum	105Mb	£529.95
	Quantum	210Mb & 425Mb	P.O.A.

ACCELERATORS/EMULATORS

STA13	A2630 TURBO CARD	68030/68882 25MHz	
	Original Commodore including 2Mb 32 Bit RAM		£899
PK102	A500	68030/68882 16MHz 2Mb 32 Bit Fast RAM	£599
PK101	A2000	68030/68882 16MHz 2Mb 32 Bit Fast RAM	£599
V8350	A500 AT ONCE	80286 PC-AT Emulator Norton 6.1, Multitask	£165

Prices subject to change without notice. E&OE

ALL PRICES INCLUDE VAT, POSTAGE & PACKING

Tel: (041) 339 3590. 10am to 7pm Monday to Saturday

SUPER SUMMER SAVERS FROM BCS

AMIGA PD
NOW AVAILABLE

3 1/2" DS/DD

3 1/2" 60 Cap
Stackable box
£10.00

Bulk Buyers 2 for 1 disk guarantee

50 3.5" DS/DD	£21.00
100 3.5" DS/DD	£33.00
150 3.5" DS/DD	£49.00
200 3.5" DS/DD	£62.00
400 3.5" DS/DD	£125.00
500 3.5" DS/DD	£139.00

Price includes VAT & P&P

Free
labels

Posso 150 cap
stackable box
£15.00

5 1/4 50 cap box£5.10
100 cap box£5.90

Disks & boxes 2 for 1 disk
guarantee

50 disks + 80 cap box	£24.00
100 disks + 80 cap box	£36.00
150 disks + 80 cap box	£51.00
200 disks + 2 x 80 boxes	£65.50
400 disks + 4 x 80 boxes	£138.00
500 disks + 5 x 80 boxes	£155.00

Price includes VAT & P&P

3 1/2 40 cap box£4.10
80 cap box£4.50

100 3.5" DS/HD
£61
inc. VAT & p&p

5.25" DS/DD...21p
5.25" DS/HD...39p

3.5" DS/HD
60p

SONY BULK
37p

Philips CM8833
MKII monitor
£205
Now in stock

20 Sony
branded + box
3.5" DS/DD
£14

100 Sony
bulk inc. VAT
& p&p
£40

TDK 3.5" HD
box 10
£10.50

Star LC-200
colour printer
£205
now in stock

Replacement
Amiga Mouse
£14

Datascan Amiga Scanner
£149.99

AMIGAS

Amiga 500	£299	Class of the 90's	£475
Cartoon Classic 1Mb	£360	First Steps	£510
Screen Gems 1Mb	£360	Cumana drive	£65
Amiga 1500	£650	iMb no clock	£28
Amiga 1500 + monitor	£895	iMb + clock	£31

ACCESSORIES

Mouse mat	£2.75	Printer lead	£8.50
Zipstick	£11.50	Dust cover	£5.50
Jetfighter	£12.50	1,000 Tractor labels	£10.00
QS Turbo III	£8.00	2,000 Sheets	
Cheetah 125+	£8.00	11 x 91" paper	£15.00
1000 labels	£8.00		

Trade/Government/School orders
welcome

Add £3.65 p&p, add £4.00 for 3 day
delivery, add £8.00 2 day, 10.00 next
day (from despatch)

Cheques will be held for clearance.
Call or send cheques/postal orders to

Access BCS Ltd, VISA

349 Ditchling Road,
Brighton,
E. Sussex, BN1 6JJ
Tel: (0273) 506269
or (0831) 279084

Price Busters!!

Graphics & General

Hardware

* 3D Construction Kit	32.00	1.5Mb Int. RAM A500	82.99
Advantage Spreadsheet		8mb RAM (2Mb)	
	69.99	A2000	184.99
* Broadcast Titler	169.00	Ext 3.5" Drive for A500	49.99
Colourburst	479.99	A1500 CPU case	199.99
* Digipaint III	44.99	ADSpeed 68000	164.99
Digiview 4.0	89.99	Cortex 8Mb (2Mb)	
* Disney Animation		RAM	229.99
Studio	69.00	G2 Video Centre	599.99
* Deluxe Paint III	54.99	Invision Plus Live!	549.99
Home Titler	29.99	Midi connector	24.99
Imagine	149.99	Minigen	84.99
* Organize	19.99	Optical mouse	34.99
ProDraw V2	89.99	A500 power Supply	44.99
* Protitler	99.99	RGB Splitter	59.99
Personal Finance		A4 Mono. scanner	349.99
* Manager	19.99	Vidi Amiga	99.99
Spectra Colour	44.99	ZY-FI Stereo amplifier	29.99
Superbase Prof. 4	249.99	Zydec switchable mouse	17.99
* System 3	34.99	Zydec 5Mb RAM &	
Art Department Prof.	104.99	Clock	29.99
* TV*Text Pro	89.99	JX100 Colour Scanner	499.99
Vista	35.00	JX100 Scanlab software	59.99
* Educational		Podscat tablet & s/w	189.99
		Trackball (Truedox)	29.99

Music & Sound

* Distant Suns	29.99	AMAS	69.99
Fun School 3 (5-7)	15.99	Audio Engineer Plus	159.99
* Fun School 3 (Over 7)	15.99	Bars & Pipes Prof.	199.99
Fun School 3 (Under 5)	15.99	Music X V1.1	79.99
* GB Route	27.99	Master Sound	29.99
Game Set & Match	14.99	Perfect Sound	39.99
Kids Type	19.99	Sequencer One	64.99
* Micro English	18.99	Aegis Soundmaster	99.99
Micro French	18.99		
* Micro Maths	18.99		

Development & Utilities

DTP & Wordprocessing

DOS 1.3 Enhancer	10.99	Excellence 2.0	74.99
* AMOS	32.00	Gold Disk Office	89.99
AMOS compiler	19.99	Kind Words	29.99
* AREXX 1.10	29.99	Pen Pal	59.99
BBC Emulator (Latest)	29.99	Pagesetter V2	39.99
* Can Do V1.5	89.99	Page Stream 2.1	137.00
Cross Dos	24.99	Professional Page V2	169.99
* Cygnus ED		ProtextV5	99.99
Professional	59.99	Quickwrite	39.99
DEVPAC V2	39.99	Scribble Platinum	34.99
* Hyperbook	44.99	Works Platinum	62.00
Logo	34.99	Transwrite	29.99
* X-Copy Professional	29.99	Wordsworth	89.99

* **FREEPOST** or £5 Securicor *
48 hour despatch

* Cheques should be made payable to Softstore *
Access and VISA cards accepted

* Softstore, 410 Bath Road, Slough, SL1 6JA *

* **0628 - 668320** *



DATEPLEX COMPUTERS LTD.

129 Bath Road,
Slough,
Berkshire,
SL1 3UW

19 High Street,
Old Town,
Swindon,
Wilts

Tel: 0753 535557

Tel: 0793 488448

SHOWROOM
open:
Mon - Fri
9.30 - 5.30
Saturday
9.30 - 4.30
MAILORDER
Consumables
£1.50
Hardware
£8.00
Prices
excluding VAT

AMIGA A500 HARDWARE

Amiga A500 Screen Gems +
1 Meg Pack£309
Amiga A500 Screen Gems Pack + free
disks + 10 extra games pack.....£345
Amiga A500 1 Meg Class
of 90's (First Steps)£369

CARTOON CLASSIC PACK

Amiga A500 including 1 Meg Ram +
FREE 10 blank disks, mouse mat
£309

(Software includes Lemmings, The
Simpsons v Space Mutant, Captain
Planet, Deluxe Paint 3)

A1500 £549

A1500 Base plus software£549.00

A1500 + Philips CM8833 Mk2

Colour Monitor£725.00

A1500 + Commodore 1084S

Colour Monitor£735.00

AMIGA/ATARI DRIVES

1 Meg 3 1/2 External (Dataplex)£55.00

1 Meg 3.5" internal£49

1 Meg 3.5" external (Cumana)£60

1 Meg 5.25" external£90

ACCESSORIES

512K Ram + clock£30
Joystick£10
10 Blank disks in library box£8
Mouse Mat£3
Amiga/Atari Mouse£29
1: Meg Ram + Clock£99.00
A500 Power Supply Unit£34.00
Naksha Mouse plus Operation Stealth£24.00

INTRODUCTORY OFFER

Screen Filter for your monitors.
Protect those precious eyes **£15**
(Woven nylon fibre, flare reduction 90%,
cuts ultra-violet reflection by 85%)

MONITORS

Philips CM8833 MK II Colour Monitor +
FREE Lead£189

PRINTERS

Star LC10 Mono£125
Star LC200 Colour (9 pin)£169
Star LC24 10£160
Star LC24 200 (24 pin)£205
Star LC24 200 Colour£245
Panasonic KXP1124i£214
Panasonic KXP 1123£158
Panasonic KXP1624£329
Citizen 120D +£120
Citizen Swift 24 + Colour Upgrade£239
Citizen Swift 9 + Colour Upgrade£160
Canon BJ 10E Inkjet£199
HP Deskjet 500 + Leads£329
All above come complete with leads

AMIGA HARD DRIVES (PROTAR)

These hard drives come with a 1 year replacement
warranty.
20Mb External£235.00
30Mb External£295.00
50Mb External£365.00
60Mb External£460.00
80Mb External£499.00
100Mb External£539.00
160Mb External£799.00
All disks come complete with software

RICHARDS DEVELOPMENTS

1/2 Meg Amiga upgrades no clock includes on/off switch£19.95

4D-Ram Version

1/2 Meg Amiga upgrades with clock and switch.....£24.95

4D-Ram Version

***** SPECIAL LAUNCH OFFER *****

Amiga 1.5 Meg upgrades fully populated, includes clock,
easy fit runs off Gary Chip, requires 1.3 version.

5 year warranty free 2 Mb demo.

ONLY £69.95 inc VAT

3.5" Disks DD/DS 100% error free.....1-4935p each
49-9931p each
100+28p each

ALL DISKS INCLUDE FREE LABELS

40 Cap locking disk box 3.5"£3.99 each

80 Cap locking disk box 3.5"£4.99 each

Null modem lead for back to back communications£3.99 each

Amiga 4 player adaptor lead.....£4.99 each

Joystick extension lead.....£4.99 each

Amiga dust cover.....£2.99 each

Mouse mat top quality£1.99 each

ALL PRICES INCLUDE VAT, POSTAGE AND PACKING IS EXTRA
PLEASE ASK WHEN ORDERING.

CREDIT CARD HOTLINE 9am-5pm 0602 464188
after 5pm call 0509 674187

Cheques/Postal Orders to:

**RICHARDS DEVELOPMENTS, 14 Windmill Way, Kegworth,
Derby DE7 2FA. Please phone first for price of postage.**
ALL PRODUCTS CARRY A FULL 5 YEAR WARRANTY
Public Domain also available all disks only 99p plus p+p
For full catalogue send £1.00



Take it up to 2 1/2 megs

Amiga A500 2 meg expansion

Here at last is the memory expansion board you have
been waiting for! The V2000 will give you up to
2 megabytes of additional fast RAM.

The V2000 can be expanded in 1/2 meg stages, from
1/2 meg to 2 megs, and it represents the best value for
money available.

- * Compatible with Kickstart 1.2 and 1.3
- * Real-time clock/calendar
- * Top-quality gold-plated connector
- * Memory disable facility
- * Plugs into slot under your A500
(no soldering required)
- * Comes with full instructions
- * Helpline available

£104.95 Introductory price for
inc VAT P&P full 2 meg expansion



V500 512K extension without clock £24.61
V501 512K extension with clock £28.61
(chip RAM configurable with Fatter Agnus)

Also available (phone for full range):

V2000 board only£37.95
V2000 + 0.5 meg£53.96
V2000 + 1.0 meg£70.95
V2000 + 1.5 meg£87.95

RAM chips per 1/2 meg set
(compatible with A590)£18.59

Sound Demon£44.96

(quality stereo from your Amiga)

Kickstart 1.3£28.40

Disks (3.5" & 5.25")35p each (+P&P)

Full range of software available.

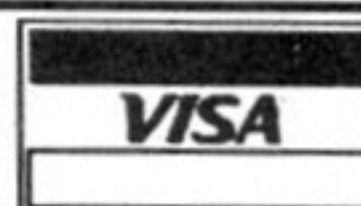
Phone for details.

Yes. Prices include VAT & delivery



Virgo Developments Ltd, Sapphire House, Fishponds Road, Wokingham,
Berkshire, RG11 2QJ. Tel: 0734 890588 Fax: 0734 891646

Same day dispatch. 24-month guarantee. Commodore-registered Amiga developer



credit card +3.5%

The plot thickens...

The drawings handled by ADraw are made up of various components, or elements. There are five types that will be added at this stage: boxes, circles, lines with multiple points, text strings, and groups of the above.

These elements and their implementation are not designed to be all-encompassing; rather, they are intended to make the addition of further, possibly complex, graphic types easy to do.

Each top-level element associated with a project is hooked to a list in the Project structure. This list is maintained via the exec.library list functions. Each graphic type has some data that is unique to an element of that type. These structures are shown in Listing 1.

The structures in themselves do not provide nearly enough information to start constructing a picture. Things like the position and colour are missing, as well as the information to thread copies of the elements together in memory while they are attached to a project. Since this sort of information is pretty much common to all the various element types, it is created as a

In this, part four of his series on building an Amiga application in C, Sam Littlewood connects ADraw to some screen pixels that are of the program's own making rather than Intuition's

'wrapper' around the above structures (see Listing 2).

The Element structure has the ubiquitous MinNode at the front, which provides the support for doubly

"Rewriting a feature ten times rather makes it lose its appeal!"

linked lists. The colours and drawing style are stored in terms of the values to pass to the Amiga

graphics.library. Before the element is drawn, the values are simply passed to the appropriate graphics.library functions. This is convenient for the moment and things can be got up and running quickly. It is, however, earmarked as an area to return to in the future for the following reasons:

- It does not represent what might be possible with printers, such as varying line styles and fill patterns.
- It does not (easily) allow any of our own styles to be added in at a later date by just adding self-contained code. One such example would be varying the thickness of lines.
- The #defined numbers for each element type do not use 0. The reason for this is one of debugging,

"Here we are again... So far ADraw is a reasonably complete program from the windows, menus and gadgets point of view, but it is a little lacking in guts. What we need to do is add some drawing routines to the basic frame. Read on..."

Sam Littlewood

since omitting to fill in the type somewhere in the program will leave the type member of the element obviously invalid, prompting further investigation, rather than an apparently correct, but actually bogus, value.

Elements are created with the general routine CreateElement(), shown in Listing 3. This allocates a new block of memory to hold the element, fills some default values, and sets the position. In addition it can optionally link this new element on to a given list.

The type-specific initialisation in CreateElement() is one aspect of the way in which many different types of element are handled by a small

continued on page 83

LISTING 1 • LISTING 1 • LISTING 1

```
/* Structures to encapsulate the data particular to each element
type
*/
struct BoxInfo {
    /* Size of box in project units
    */
    long width;
    long height;
};

struct CircleInfo {
    /* Radius of circle in project units
    */
    long radius;
};

struct LineInfo {
    /* An exec list of the points on the line. Each element
    * of this list is a 'LinePoint' structure.
    */
    struct MinList points;
};

struct TextInfo {
    /* Pointer to an AllocMem'd block of memory containing
    * the string, including '\0' byte at end.
    */
    char *text;
    /* length of above memory block
    */
    int text_length;
};

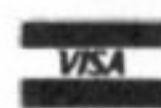
struct GroupInfo {
    struct MinList elements;
};
```

LISTING 2 • LISTING 2 • LISTING 2

```
* The structure that makes up the individual elements of a project
*/
struct Element {
    /* Node used to link element on to
    * project or group element list.
    */
    struct MinNode node;
    /* The particular type of this element
    */
    int type;
    /* Position in project units
    */
    long x;
    long y;
    /* Rendering information
    */
    char fg_colour; /* Used for SetAPen() */
    char bg_colour; /* Used for SetBPen() */
    char outline_colour; /* Used for SetOPen() */
    int draw_mode; /* Used for SetDrMd() */
    /* The data for the particular type of primitive
    *
    * Each variant of the data is overlaid
    * into the same area of memory.
    */
    union {
        struct BoxInfo box;
        struct CircleInfo circle;
        struct LineInfo line;
        struct TextInfo text;
        struct GroupInfo group;
    } e;
};

/* The possible values for Element.type
*/
#define ELMT_BOX 1
#define ELMT_CIRCLE 2
#define ELMT_LINE 3
#define ELMT_TEXT 4
#define ELMT_GROUP 5
```


SEE
BELOW FOR
COMPETITION



Tel 0257 276800

Main office & 24 hour order line

Fax 0257 274753

Help desk 0490 3284

Weekdays 3-4pm

Overseas orders please add £5.00.

All prices include P+P and VAT.

WITH *Intraset Ltd*

Our compendium of gaming software uses your computer's intelligence and logic to predict winners and advise you on strategy. Whether you're an experienced punter or a novice, with a little time and our range of software, you can maximise your winning potential.

COURSEMASTER

Our proven horse racing program
for both FLATS or JUMPS £24.95

***NEW**

TRACKMASTER

The Greyhound Racing Tipster £19.95
Coursemaster & Trackmaster Twin Pack £39.95
(Saving £4.95)

Using simple information from the racing card in daily papers or the racing papers, COURSEMASTER and TRACKMASTER will predict with consistent accuracy.

The winner is predicted as well as second and third places for tricasts. The programs also mention attractive long shots, recommend types of bets and most importantly warn when not to bet.

Successful betting extends beyond merely picking the winners and COURSEMASTER and TRACKMASTER will assist in managing your bets. They work out your winnings on the most popular types of bet including SINGLES, DOUBLES, PATENT, YANKEE, CANADIAN, print out your betting slips, and even maintain your betting bank account. SYSTEM BETS will regularly provide a system for MAJOR WINS with small stakes - try it and surprise yourself.

COMPETITION Details and rules

Our company likes to see people winning, which is why we're running our fabulous 'Win a pc competition'. With every purchase you make, you will automatically be entered into the draw. You can also enter for free by sending a postcard to INTRASET.

1st prize - PC NT286 Colour

2nd prize - Complete set of Intraset Business and Gaming Software
3rd prize - Complete set of Intraset Gaming Software
5 runners up will each win their choice of one Intraset title.

Intraset's decision will be final on all matters.
Send an SAE for list of winners.
Draw dates 28/2/92 and 28/9/92

SPECIAL OFFER

POOLSMaster and COURSEMASTER
together for £44.95 (Saving £4.95.)

Our complete gaming suite: £110.00
POOLSMaster (British & Australian),
PERM-MASTER, SPOT-THE-BALL,
COURSEMASTER, TRACKMASTER
Saving £22.70



Intraset Ltd

Send an SAE for full catalogue

'A licence to print money' Mr FC Hammond of Essex who won nearly £10,000 in 16 weeks

'We have won many thousands' Mr PE Roberts of Dorset who so far has won more than £46,000

*Copies of these and other endorsements from actual customers are available on request.

POOLSMaster British or
Australian £24.95 each.
Poolsmaster British and Australian
£44.95 (Saving £4.95)

The Football Pools Predictors

Developed after years of detailed study, POOLSMaster uses a unique scientific formula to predict Home, Aways and Draws. The FORM PREDICTION option analyzes result possibilities with amazing accuracy. The unique indexing system allows for quick entry of fixtures and results, and updates itself season after season so there is no need to buy a new copy each year. Poolsmaster also contains a unique coupon number sequence predictor.

Together, both Poolsmaster editions cover all British league and cup matches and the Australian league.

PERM-MASTER £19.95
**The perfect companion for
Poolsmaster**

Designed for users of PERM systems, PERM-MASTER ends the agony of checking by doing it for you. It comes complete with several of the top perms built in but you can also create your own with the unique PERM EDITOR and PERM CALCULATOR features. PERM-MASTER is fast and easy to use and can be used for most block and single line perms. Additional discs of top perms are available at £14.95 each.

All programs available for IBM/PC & compatibles, all Amstrad PC's, Amstrad PCWs, Atari, Amiga and CPC 6128. Coursemaster, Poolsmaster British and Trackmaster are also available for all Amstrad CPC's, all Spectrums and C64 & 128.

SPOT-THE-BALL £17.95

There is no more need for counting 'x's or using messy rubber stamps. Simply tell your computer where you think the ball is using the screen template provided. It will give you a print-out of up to 540 micro-fine crosses in your chosen shape or it can chose at random for you. SPOT-THE-BALL learns week after week and builds up a database of results for the SEQUENCE PREDICTOR OPTION.

GUIDE TO POOLS AND PERMS £14.95

**The definitive guide to Pools
permutations and betting
systems**

Written by the experts responsible for our successful software range. Master the fine art of prediction by reading this fascinating in-depth explanation of betting systems and perms. Plan a campaign for that elusive big win and use this books' tips on selecting the best matches and races and how to use perms to maximum effect on Pools, Horses and Dogs.

INTEREST-FREE CREDIT

Spend over £80 and spread the cost at no extra charge! (Cheque purchases only.) Simply divide your order by 4 and send us 4 cheques each with your name and address and cheque guarantee number: Date the first cheque with today's date and post-date each of the other cheques by one month ie. 1/5/91, 1/6/91 etc. We will then hold each cheque until it is due.

Send cheques or postal orders to INTRASET LTD (DEPT ASH) FREEPOST,
10 Woodside Avenue, Clayton-Le-Woods, Chorley, Lancs. PR6 7BR.
Phone or Fax for lightning service. All major credit cards accepted.

LISTING 3 • LISTING 3 • LISTING 3

```

/* CreateElement
 *
 * Allocate a new element of the specified type and possibly
 * attach to the given list.
 *
 * The generic element structure is allocated and filled in,
 * then a type specific function is called to initialise
 * the rest of the structure.
 */
struct Element *CreateElement(struct MinList *list, int type, long x, long y)
{
    struct Element *element;
    element = AllocMem(sizeof(*element), MEMF_CLEAR);
    if(element == NULL) AllocError(AE_ELEMENT);
    /* Fill in provided information
    */
    element->type = type;
    element->x = x;
    element->y = y;
    /* Some default colours and styles
    */
    element->fg_colour = 2;
    element->bg_colour = 1;
    element->outline_colour = 0;
    element->draw_mode = JAM2;
    /* If there is a special case initialisation function
    * for this type, call it with the pointer the newly
    * created element.
    */
    if(ElementActionsTable[type].initialise)
        (*ElementActionsTable[type].initialise)(element);
    /* If list argument is non-null, then
    * add this element to that list.
    */
    if(list) ADDTAIL(list, element);
    return element;
}

```

continued from page 81

amount of code. As with the data describing the elements, the actions to handle elements are split into two types: general code appropriate for any element, and code that is specific to one type. This fact could be totally ignored and a whole slew of routines written – CreateBox(),

CreateCircle() and so on. But this is possibly the worst idea, since some change to the way in which general element handling is done will lead to tedious work as the change is propagated through all the identical bits of code in each routine – there's nothing like rewriting a new feature 10 times to make it lose its appeal!

LISTING 5 • LISTING 5 • LISTING 5

```

/* LineInit
 *
 * Special case initialisation for a
 * line – make the points list be empty.
 */
void LineInit(struct Element *element)
{
    NEWLIST(&(element->e.line.points));
}
/* GroupInit
 *
 * Special case initialisation for a
 * group – start with empty element list.
 */
void GroupInit(struct Element *element)
{
    NEWLIST(&(element->e.group.elements));
}

```

A more acceptable solution would be to have a routine like CreateElement() that does all the general initialisation, but then has a big 'switch()' statement on all the various element types at the end:

```

/* General Initialisation */
...

switch(element->type) {
case ELMT_BOX:
    /* Initialise a box */
    ...
    break;

case ELMT_CIRCLE:
    /* Initialise a circle */
    ...
    break;
}

```

This can still result in some rather tedious and error-prone editing when the number of routines that have this

mix of general and specific increases – DeleteElement(), DrawElement(), SelectElement() and so on. Each of these routines has to be sorted out, possibly in widely separated files.

The method that ADraw uses is to have a program-wide table with an entry for each element type. The entries in the table are a structure of pointers to functions – the specific bits of code for various actions. If there is no action required, then the associated pointer is NULL. This rather important table is called ElementActionsTable (see Listing 4). CreateElement(), having done the general initialisation, looks in ElementActionsTable, given the type. The particular part of the type entry it is interested in is a member called 'initialise'. If it is not NULL, initialise points at a routine to use for the remainder of the initialisation.

There are various other special case routines, to dispose of the element, for example, or to draw the element and to draw 'select' highlighting for the element.

The two element types that need special initialisation are lines and groups. Both these types are based on a list. Lines have a list of points, groups have a list of sub-elements. The associated initialisation functions, detailed in Listing 5, simply set up these lists to their empty states.

The 'Text' type is peculiar in that it does not have an initialisation function, but does have a deletion function. This is because the Element block is allocated with MEMF_CLEAR, and is all zeros. As a result of this, new Text elements get a text length of zero and a NULL text pointer. This is exactly what is needed for a Text item that has not had any text filled in yet. When the time comes to delete a Text element, there now needs to be a special case delete routine to free up the associated string.

This scheme only scratches the surface of the range of solutions to the problem of wrapping up special cases of general types in a clean way. There are more general, but more complicated ways. One could

continued on page 84

LISTING 4 • LISTING 4 • LISTING 4 • LISTING 4

```

/* There is a global array of these structures,
 * containing useful information and function
 * pointer particular to each element type.
 */
struct ElementActions {
    /* If non NULL, a function pointer
    * to call during element creation.
    */
    void (*initialise)(struct Element *);
    /* If non NULL, a function pointer
    * to call during element deletion.
    */
    void (*delete)(struct Element *);
    /* If non NULL, a function pointer
    * to draw the one these elements.
    */
    void (*draw)(struct DrawInfo *, struct Element *);
    /* If non NULL, a function pointer
    * to draw the select highlighting
    * for one of these elements.
    */
    void (*draw_select)(struct UserWindow *, struct DrawInfo *, struct Element *);
    /* Other special case entries
    * ...
    */
};

/* An array of information about each element type.
 */
struct ElementActions ElementActionsTable[] = {
    /* Type          Init          Delete          Draw          DrawSelect      ... */
    /* NULL          */ {0},          /* Type 0 does not exist */
    /* BOX           */ {NULL,        NULL,          BoxDraw,       BoxSelect        },
    /* CIRCLE        */ {NULL,        NULL,          CircleDraw,    CircleSelect     },
    /* LINE          */ {LineInit,    LineDelete,    LineDraw,      LineSelect       },
    /* TEXT          */ {NULL,        TextDelete,    TextDraw,      TextSelect       },
    /* GROUP         */ {GroupInit,    GroupDelete,   GroupDraw,     GroupSelect      },
};

```


LISTING 6 • LISTING 6 • LISTING 6

```
...
case MIEDIT_ZOOMIN:
/* Increase magnification of window
*/
if(uw->scale_x >= MIN_ZOOM*2 && uw->scale_y >= MIN_ZOOM*2) {
    uw->scale_x /= 2;
    uw->scale_y /= 2;
    /* Update the window
    */
    DrawWindow(uw,0);
}
break;
case MIEDIT_ZOOMOUT:
/* Decrease magnification of window
*/
if(uw->scale_x <= MAX_ZOOM/2 && uw->scale_y <= MAX_ZOOM/2) {
    uw->scale_x *= 2;
    uw->scale_y *= 2;
    /* Update the window
    */
    DrawWindow(uw,0);
}
break;
...
```

LISTING 7 • LISTING 7 • LISTING 7

```
/* Structure describing where and at
* what scale to draw something.
*/
struct DrawInfo {
    /* The RastPort to draw into.
    */
    struct RastPort *rp;
    /* x,y offset within that rastport
    * for window origin.
    */
    int origin_x;
    int origin_y;
    /* x,y offset in project space.
    */
    long view_x;
    long view_y;
    /* Scale, in project units per pixel, both axis.
    */
    long scale_x;
    long scale_y;
};
```

LISTING 8 • LISTING 8 • LISTING 8

```
/* RenderProjectWindow
*
* Draw the current view of a project into
* draw area of the window attached to a
* given UserWindow.
*/
void RenderProjectWindow(struct UserWindow *uw)
{
    struct DrawInfo draw_info; /* NB: Actual structure, not a
    pointer */
    struct Element *element;
    /* Fill in draw info from UserWindow
    */
    draw_info.rp = uw->window->RPort;
    draw_info.scale_x = uw->scale_x;
    draw_info.scale_y = uw->scale_y;
    draw_info.view_x = uw->view_x;
    draw_info.view_y = uw->view_y;
    /* The window origin is in the middle of the draw area.
    */
    draw_info.origin_x = (uw->draw_rect.MinX+uw->draw_rect.MaxX)/2;
    draw_info.origin_y = (uw->draw_rect.MinY+uw->draw_rect.MaxY)/2;
    /* Walk along the elements of this project.
    */
    for(element = HEAD(&uw->project->elements);
    NEXT(element);
    element = NEXT(element))
        DrawElement(&draw_info,element);
}
```

continued from page 83

move to a newer (but less well-supported) language that has more direct support for the goals. The far reaches of this scale include writing special purpose languages particular to the application. Trying to build such an ultimate system can, however, lead to a development time scale specified in geological terms before anything actually works!

ELEMENT LOCATION

Various pieces of code mentioned above have referred to 'project space' and 'project units'. The position and size of elements within a project are kept in rather abstract units, a long integer for (x,y). The project can be thought of as an immense piece of graph paper ranging about two million squares up, down, left and right from the origin. This is what gets called 'project space'. The squares are 'project units'.

All elements in the project are placed and sized using project units in project space. The Amiga screen co-ordinates have absolutely nothing to do with the accuracy of how the elements are placed and sized – they only get involved when the project is being drawn or a mouse click is converted to the corresponding place in project space.

How the Amiga screen and mouse position relates to project space is individual to each window on to the project. The information is stored in the UserWindow structure:

```
...
/* Position in project
* space of the window
* centre.
*/
long view_x;
long view_y;

/* The number of project
* units to a screen pixel
* in each axis should be
```

```
* a power of 2.
*/
long scale_x;
long scale_y;
...
```

These structure members describe, for each window, where it is in its associated project and how much of the project is visible within the window. The scroll bars around the draw area will modify view_x and view_y, whereas the Zoom In and Zoom Out menu entries will change scale_x and scale_y. The entries in the menu 'switch' statement for Zoom In and Zoom Out are shown in Listing 6.

This zooming works well, but it does have its limitations. It only works in powers of two; the sizes are doubled or halved each time. Any other scales will tend to get lost, especially if the view is zoomed all the way in and out.

A possible extension is to keep a separate floating point aspect ratio for the current screen. The scale number becomes one value, rather than separate ones for x and y. This number is used directly when scaling in the x direction, but is multiplied by the aspect ratio when scaling in the y direction is required. This has been avoided for the moment because of the potential introduction of floating point calculations.

All the routines that can draw project elements take a pointer to a structure called DrawInfo. This structure contains the various scaling and origins that are needed to map the project on to the screen, along with the RastPort to draw into. (A RastPort is a graphics.library structure used to describe a chunk of the screen). This may seem strange, since all the scaling and position information can be dug out of the UserWindow structure – and indeed, for screen updates the DrawInfo structure has a direct copy

continued on page 86

LISTING 9 • LISTING 9 • LISTING 9

```
/* DrawElement
*
* Setup graphics.library with colours
* and draw mode for this element and
* then call a special case drawer.
*/
void DrawElement(struct DrawInfo *di, struct Element *element)
{
    /*
    * Set up the basic drawing information from the element.
    */
    SetAPen(di->rp,element->fg_colour);
    SetBPen(di->rp,element->bg_colour);
    SetOPen(di->rp,element->outline_colour);
    SetDrMd(di->rp,element->draw_mode);
    /*
    * Do the type specific drawing
    */
    if(ElementActionsTable[element->type].draw)
        (*ElementActionsTable[element->type].draw)(di,element);
}
```


MIKE JERVIS

16 bit Computers

19 Portree Drive, Rise Park, Nottingham.
NG5 5DT. Telephone (0602) 274369

SERIOUS AMIGA SOFTWARE AT FRIVOLOUS PRICES

All prices include VAT and Postage Callers Welcome

Bars & Pipes Professional complete with Tool Kits A&B, Multi Media Kit and Internal Sound Kit **£300.00**

Pen Pal **£65.00**

Wordworth **£80.00**

Video Titler 3D..... **£89.50**

Pro Video Plus..... **£153.50**

Amigavision..... **£76.50**

K-Roget..... **£20.00**

Deluxe Paint 3 **£53.50**

Small Business Accounts Cash **£53.50**

Sterling Service Bulletin Board **£73.50**

Quarterback **£32**

Distant Suns **£43**

Vista **£51.50**

GPterm **£50**

Art Department Professional **£115**

Small Business Accounts Extra **£76.50**

K-Comm2 **£20**

A.M.A.S **£64**

Prodata **£49**

Quarterback Tools **£44.75**

Protext 5 **£90**

DOS to DOS **£24.50**

The above is only a small selection from our extensive stocks of hardware, software and peripherals.

For computers & accessories..... **RR** where you CAN buy more for less

DISKS, HIGH QUALITY WITH LABELS

3.5" DSDD, blue 33p
3.5" Sony, branded 68p
3.5" 3M, branded 75p

DISK STORAGE BOXES

3.5" 40 capacity, locks £4.45
3.5" 80 capacity, locks £5.45
3.5" 100 capacity, locks £5.95

ACCESSORIES

Amiga external drive £55.95
0.5Mb upgrade £24.95
0.5Mb upgrade, clock £28.95
Amiga replacement mouse £17.50
Naksha upgrade mouse £23.95

Universal printer stand £5.95
Tilt/turn monitor stand £10.95
Mouse/joystick extension £4.95
4-player extension lead £4.95
Joystick splitter lead £4.95
Fastrack disk swap box £2.95
Mouse mat, 6mm £1.95
Disk head cleaning kit £1.95
3.5" 100 disk label pack £1.50
Amiga dust cover £2.95
Zipstick autofire joystick £10.95
Quickjoy Supercharger III £8.95
Quickjoy Topstar £19.95

Ask for computers & joysticks list

Cheques/PO's to: REDLAW RESOURCES,
ASH Offer, 74 Durban Road, Patchway, Bristol, BS12 5HQ.

Please add £3.50 for p&p.

Tel: (0272) 760600 (24 hour)



WE MUST BE MAD

Due to massive bulk buying and low cost advertising we can offer you THE BEST DISKS AVAILABLE AT THE MOST COMPETITIVE PRICES

3.5" DSDD DISKS FROM 31p INC VAT + LABELS Qty's of 100+

Qty's below 100 @33p each; 250+ @ 30p each; 500+ @ 29p each

ALL DISKS CERTIFIED 100% ERROR FREE

SONY 3.5" 38p 3.5" DSHD 65p
5.25" DSDD 21p
5.25" DSHD 36p
DSDD BULK

100 Capacity Disk Box..... 4.25 50 Capacity Disk Box..... 3.50

Mouse Pockets 1.75 Mouse Mat 2.25

Printer Stand 4.25 Amiga/Atari Dust Cover 2.95

Posso Box 15.95 3.5"/5.25" Cleaning Kit 1.95

Amiga 512K RAM Expansion with clock 24.95

Amiga/Atari External Drive (Zydec) 54.95

THIS MONTHS 200 3.5" DSDD DISKS SPECIAL OFFER + 2 x 100 CAP BOXES 66.95

Please add £3.35 p&p/next day £8.50. Cheques/POs to

PLC COMPUTER SUPPLIES (Dept ASH)

11 Meakin Avenue, Clayton,
Newcastle, Staffs STA 4EY.

TELESALES HOTLINE

0782 212970



A1500 from £645!

Prices include VAT, delivery & warranty. Please add £15 for overnight delivery. All systems are tested before despatch. On-site maintenance options available.

Amiga A3000 100 25Mhz 6MB **£2995**
Amiga A3000 50 25Mhz 3MB **£2795**
Amiga A1500 latest UK model **£645**
Amiga A1500 as above plus DPaint3 Works Platinum etc **£699**
Amiga A1500 with A2088 PC-XT bridge board & 5 1/4 disk drive **£849**
Amiga A1500 with 20MB autoboot hard disk **£895**

■■■ A1500 + XT Bridge Board + 20MB autoboot hard disk £1095!



A2630 card 25MHz/FPU/4MB **£1295**
A2286 PC-AT board & 5 1/4 drive **£675**
A2088 PC-XT board & 5 1/4 drive **£225**
C2058 8MB Board 2MB installed **£184**
RAM for above per 2MB **£72**
A2232 Multi Port Serial Card **£199**
Quantum ProDrive 50MB 11ms **£275**
Quantum ProDrive 100MB 11ms **£425**
Quantum ProDrive 200MB 11ms **£725**
A2091 card for ProDrive, 2MB OK **£189**
RAM for above, per MB (max 2MB) **£36**
External Drive unit for ProDrive **£95**

RAM for A590 80ns per MB **£36**
SCRAM for A3000 80ns per MB **£72**
KCS PC Power Board **£229**
SupraModem 2400 Hayes/AA/AD **£115**
SupraModem 2400 Plus MNP/v42 **£189**
SupraModem 2400zi internal **£99**
MultiScan monitor 14" 1024x768 **£395**
A2320 Display Enhancer for above **£249**
HP DeskJet 500 inkjet, 300 dpi **£475**
HP PaintJet colour inkjet 180 dpi **£875**
Rendale 8802 Genlock **£169**
Rendale Pro Genlock **£575**
FrameGrabber 2 all colour modes & overscan, up to 640x400 resolution **£495**
SketchMaster 18x12 dwg. tablet, 1000 lpi, with stylus & 4-button cursor **£495**
ColorBurst 24-bit card **£569**

■■■ A1500 with 50MB Quantum autoboot hard disk £1075!

Why not enjoy the free Teletext databases with the MicroText Teletext adaptor... Fully programmable, with Fasttext facility, instant access to last 16 pages, double page view, telesoftware loader, auto-start/background operation... Pages can be spoken, printed as ASCII or graphics, saved as ASCII or IFF files... And it turns your 1081/1084/8833 monitor into a digital TV! Available now for only **£144!**



■■■ Amstrad FX9600AT Fax + Printer + Copier + Scanner £115 off!



SuperPlan Pro spreadsheet with business graphics, time planner **39.95**
SuperBase Personal 2 Relational database power, without programming! **39.95**
Professional 3 "The Rolls-Royce of Amiga databases" (NCE) **149.95**
Professional 4 Much enhanced and with many new features **249.95**
Advantage v1.1 Fastest Amiga spreadsheet with WP & Co-Pro support **89.95**
C64 Emulator v2 Don't throw your C64 software away! **49.95**
Doctor Ami! Guru stopper... disables bad disk blocks and RAM! **34.95**
Disk Mechanic Tune-up, backup, salvage, plus new CLI commands **44.95**
QuarterBack v4.2 The fastest hard disk backup utility **49.95**
Excellence 2 New improved version... Word Perfect with graphics! **94.95**
Pagestream 2.1 Many major new features incl. Agfa/Adobe fonts **139.95**
Professional Page 2.0A Now with WP, 24-bit & Pantone colours & more **174.95**
Professional Draw 2 Improved version with auto-trace, curved text & more... **89.95**
CG Outline Fonts 35 Agfa CG fonts for ProPage, ProDraw 2, PageSetter 2 **89.95**
TransWrite Gold Disk **£34.95**
Pen Pal v1.3 Rev 18 **69.95**
Works! Platinum Edition v1.10 **59.95**

SAS/Lattice C v5.10A **£159.95**
A/C Fortran **179.95**
A/C Basic v1.3 **109.95**
APL 68000 Level II v7.30 **299.95**
Workbench 1.3 Enhancer **12.95**
Dos-2-Dos **34.95**
Pagesetter 2 **49.95**
Professional Page Clip Art **34.95**
Professional Page Templates **34.95**

■■■ ALL PRICES INCLUDE DELIVERY AND 17 1/2% VAT ■■■

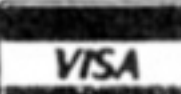


Introcad Plus Powerful new version of popular CAD program **69.95**
Broadcast Titler 2 Real broadcast quality titling with 4-level anti-aliasing **169.95**
Pro Video Post The ultimate in video presentation, titling & effects **174.95**
Pro Video font sets Choice of 5 sets of 4 anti-aliased fonts, per set... **89.95**
TV-Text Professional v2 Latest full-feature video titler, includes Zuma fonts **79.95**
TV-Show v2.02 Video presentation, special effects & transitions **54.95**
Video Effects 3D v1.2a Smooth playback, unlimited 3D effect combinations **129.95**
The Art Department v1.0.2 **£54.95**
Art Department Professional **129.95**

Imagine **£189.95**
Turbo Silver v3.0A **89.95**
DigiView Gold v4.0 + DigiPaint **89.95**
De Luxe Video III **69.95**
De Luxe Paint III **49.95**
SpectraColor **54.95**
Digipaint 3 **59.95**
AmigaVision v1.53G **79.95**

■■■ IF YOU WANT IT TOMORROW... CALL US TODAY! ON 081-546-7256 ■■■

Prices are POST FREE & include VAT. Order by phone with your credit card, or send cheque/PO or your credit card number. We welcome official orders. Software sent same-day by 1st Class post, but please allow five days for hardware delivery, unless overnight. Prices subject to availability. Ref. A79



LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 081-546-7256

continued from page 84

of much of that information. It would appear to be far easier to pass a pointer to the UserWindow structure down to all the graphics drawing routines and save the hassle of copying data around.

The reason for the extra effort is a bit of forward planning. So far, all graphics have been drawn to something that has an associated UserWindow, that being a real Intuition window. There is one case, though, where this will not be true – and that is printing.

Printing a project out using the Amiga libraries and printer drivers involves building an off-screen image of what the page will look like, then sending this to the operating system, which then does the appropriate printing. The off-screen image is accessed through a RastPort structure, just like an on-screen bitmap. The scaling and position information used for viewing is just as useful for printing; it can be used to get the project drawn at a decent resolution and at the correct position and size on the printed page.

A further use for this design is that of generating IFF picture files of the project. This will work in exactly the same way as printing, but instead of the off-screen bitmap being sent via the operating system to the printer, it is sent to a file. Listing 7 shows the DrawInfo structure. For screen updates, one of these is filled in and used by RenderProjectWindow() in Listing 8.

The Intuition event loop maintains a Rectangle structure within each window's UserWindow structure. This contains the limits of the main drawing area. (This Rectangle is also used to manipulate the clipping via the layers.library, ensuring that only the main drawing area will be rendered into.) RenderProjectWindow() uses this rectangle to find the centre of the draw area by averaging the two corners. This centre point in the windows corresponds to the view_x, view_y position in the project.

Having generated the DrawInfo structure, the list of the project's elements are traversed, calling the general element draw routine for each one. DrawElement() (Listing 9) sets up the colours and then digs around in the array 'ElementActionsTable' to find a special case routine for drawing this type of element.

The special case drawing routines are where, finally, pixels get set on-screen. They are given a pointer to a DrawInfo structure and to the element, and they must then convert the project space sizes and positions to screen values using the information in the DrawInfo. Since this conversion is going to be rather

LISTING 10 • LISTING 10 • LISTING 10 • LISTING 10

```
/* Convert project x (px) to screen x position via a DrawInfo structure (di)
*
* (proj_x - view_x)/scale_x + origin_x
*/
#define SCREEN_X(di,px) (((px) - (di)->view_x)/(di)->scale_x + (di)->origin_x)
/* Convert project y (py) to screen y position via a DrawInfo structure (di)
*
* (proj_y - view_y)/scale_y + origin_y
*/
#define SCREEN_Y(di,py) (((py) - (di)->view_y)/(di)->scale_y + (di)->origin_y)
/* Convert project x (sx) to screen x size via a DrawInfo structure (di)
*
* size_x/scale_x
*/
#define SCREEN_XSIZE(di,sx) ((sx)/(di)->scale_x)
/* Convert project x (sx) to screen x size via a DrawInfo structure (di)
*
* size_y/scale_y
*/
#define SCREEN_YSIZE(di,sy) ((sy)/(di)->scale_y)
```

common some macros, detailed in Listing 10, come to the rescue.

Apart from the maths, these macros have a feature that should be present in all macros – the heavy use of brackets. The whole macro has brackets around it, and each instance of an argument in the substitution text to the right also has brackets around it. This seemingly pedantic method is used to combat a feature of the way macros are handled.

Macro processing works much like a text editor. All #defines and

#includes are pre-processed in the input text file, and a new bunch of text is spat out, which is then fed to the compiler proper. The pre-processor knows nothing of C, it simply spots lines beginning with a '#' character and follows the instructions therein. To give an example of where the preprocessor might cause trouble:

```
#define DOUBLE1(x) x+x
#define DOUBLE2(x) x*2
...
i = DOUBLE1(4); /* i = 8 */
```

```
i = DOUBLE2(3); /* i = 6 */
i = DOUBLE1(4)*2; /* i = 10
?? */
i = DOUBLE2(1+2); /* i = 5
?? */
```

The strange results can be explained by looking at what the pre-processor generates as input for the compiler proper:

```
i = 4+4; /* i = 8 */
i = 3*2; /* i = 6 */
i = 4+4*2; /* i = 10 */
i = 1+2*2; /* i = 5 */
```

To get the above macros to act correctly in all situations, some brackets must be added to keep the compiler in step with what is required:

```
#define DOUBLE1(x) ((x)+(x))
#define DOUBLE2(x) ((x)*2)
```

If you do suspect that the pre-processor is causing problems, then it is possible to take a look at what it is feeding the compiler by giving an appropriate flag (in Lattice C, for example, use 'lc -p file.c').

Having explained the ugly macros in listing 10, and why they are quite so ugly, they actually turn out to be easy to use, as can be seen in the last piece of code for this month, Listing 11.

The only complication here is to make sure that the graphics.library function RectFill() gets given its arguments the correct way around. After all that, ADraw can actually display the data it has got tucked away in memory.

Next month we will be printing the final article in this C programming series. It will fill in some holes in the explanations so far, and suggest some possible routes which you might like to take in order to expand the project. AS

LISTING 11 • LISTING 11 • LISTING

```
/* BoxDraw
*
* Raster rendering of a box element
*/
void BoxDraw(struct DrawInfo *di, struct Element *element)
{
    int xmin,xmax;
    int ymin,ymax;
    int t;
    /* Work out screen area of box
    */
    xmin = SCREEN_X(di,element->x);
    ymin = SCREEN_Y(di,element->y);
    xmax = SCREEN_X(di,element->x+element->e.box.width);
    ymax = SCREEN_Y(di,element->y+element->e.box.height);
    /*
    * make sure the max/mins are the right way around
    */
    if(xmin > xmax) {
        t = xmax; xmax = xmin; xmin = t;
    }
    if(ymin > ymax) {
        t = ymax; ymax = ymin; ymin = t;
    }
    /*
    * Draw the result
    */
    RectFill(di->rp,xmin,ymin, xmax,ymax);
}
/* CircleDraw
*
* Raster rendering of a box element
*/
void CircleDraw(struct DrawInfo *di, struct Element *element)
{
    DrawEllipse(di->rp,
        SCREEN_X(di,element->x),SCREEN_Y(di,element->y),/* Centre */
        SCREEN_XSIZE(di,element->e.circle.radius), /* X radius */
        SCREEN_YSIZE(di,element->e.circle.radius) /* Y radius */
    );
}
```


The Beer Test

Business software can be a drag to use and rather dull to read about – especially when the example data is contrived to fit a specific application. This feature is intended as a launch pad for your own ideas, while testing real software with real data to discover how it performs. The 'Beer Test' presented here is the one introduced in last month's column – a real-world case study using data gathered from real people in a real place. Although some of the details have been changed (to protect the innocent, you might say), the figures are consistent.

The majority of this article is concerned with the how and why of conducting a computer-aided survey. The Amiga is an essential part of the process, with a database to compile and categorise the raw data and a spreadsheet to graph the results. Eventually, therefore, we can arrive at a set of conclusions derived from computerised analysis of the figures.

THE TRIAL

The synopsis: the Secretary of a local sports club, Redcar, approached me a few months ago. He was interested in performing a survey of his members to discover what they like about the club and, more to the point, what they don't like. The club has a membership of around 3,000, with a core of about 400-500 regular users.

I agreed to help with this, and we discussed exactly how we could get a 'valid' set of results out of the whole exercise. We came up with the following observations and methodology:

To get a fair assessment of what people want you must ask a reasonably sized cross-section of that membership (statisticians call it a population) for their opinion. Next, analyse the distribution according to various factors – for example, the percentage of population drinking various beers/lagers. (This analysis is said to be of a 'discontinuous population' because there are only a limited number of possibilities). In any event, the larger the population is, the more accurate the figures are likely to be.

For this test, the management team decided that over 20 per cent of the core membership (over 100 members) would represent a fair assessment. So, before going any further, here is something to help

Last month Mark Smiddy introduced a real-world trial of Superbase which he called 'The Beer Test'. Here he shows how to construct such a survey

you judge the scale of the task. Over a two week period, 181 completed forms were collected, with only eight damaged or destroyed. This far exceeds the required return and is excellent, considering the form had nearly 300 possible entries in over 80 categories. However, it should be said that several areas of the form were less than perfectly designed – thus exacerbating the problem for the designer. Not to mention my two data clerks, who were on work experience loan from a local school!

BLITS

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." – H G Wells.

& BOBS

So here, then, is how we set about the task – from conception through design to implementation of the survey and analysis of the results.

CONCEPTION

T minus 28 days

At one of its regular meetings, the (voluntary) management committee of Redcar Sports Club decided that it would be a good idea to go to its membership and ask for their opinion on how the club should be run. The problem was simple: increases in VAT and excise duty had made the cost of social drinking greater. This had been indirectly aggravated by other recent price increases and changes in the selection of drinks on offer at the club.

Influences outside the control of the club are also changing the way people spend their leisure time and therefore, if the club was to survive, radical changes would have to be made: but what? This situation is by no means unique. Changes in the

British lifestyle and working habits over the last 10 or 20 years have proved this beyond doubt, so pub landlords, and indeed any retail business, can study the lessons learned here.

DESIGN

T minus 21 days

Designing a form such as this requires a lot of careful thought if the information received is going to make any sense whatsoever. An old computer saying, GIGO (garbage in, garbage out), holds just as true today as it did when it was first coined. This is also the first hurdle: you have to know what answers you want before you ask the questions but, more importantly, you have to avoid 'loading' the questions or the results will be just as useless. Consider this: let's imagine that in a recent speech Neil Kinnock has said that the Labour Party plans to raise income tax in order to improve the National Health Service. Here is a blatant example of how the wording of a question can load a public opinion survey:



"Just how do age, peer group and occupation affect people's social behaviour? Let's find out how the computer can help decide..."

Mark Smiddy

Question A:

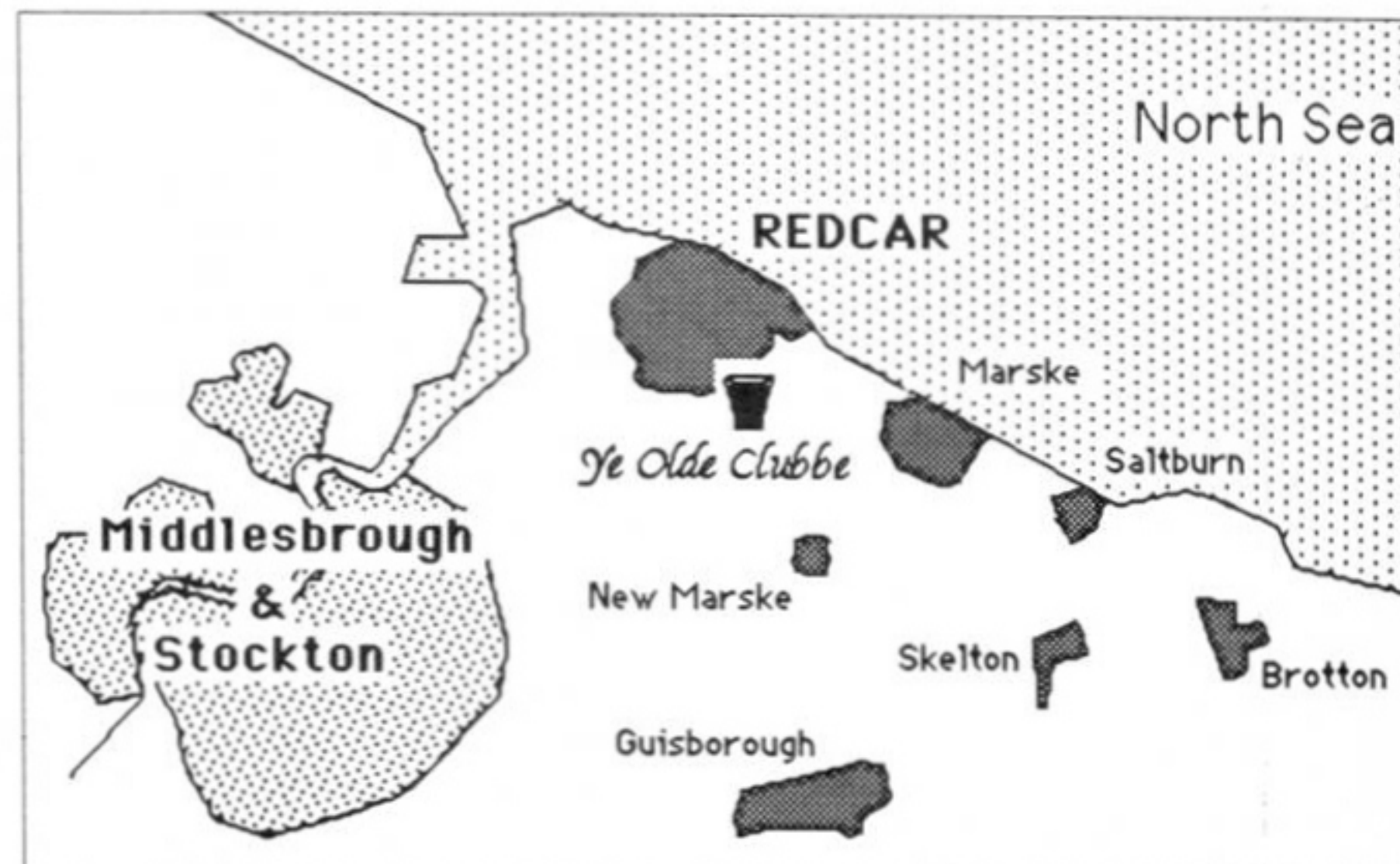
"Mr Kinnock said recently that a Labour government will raise taxes. How will you vote?"

Question B:

"Mr Kinnock said recently that a Labour government will improve the NHS. How will you vote?"

Of course, I'm not about to point fingers at reputable polling firms – this just serves to illustrate the point. In The Beer Test, it would be pointless to ask lager drinkers how often they drink bottled stout. By doing so it would be easy to prove that bottled stout is a non-starter,

continued on page 88



Cleveland used to be part of North Yorkshire and still retains many of the rural elements of that great county. A large number of the workforce still rely on two large ICI complexes and the British Steel plant situated between Redcar and the Middlesbrough conurbation. (This map is only roughly to scale.)



Active area

Active areas can only be expanded below and to the right of check boxes and radio buttons, which can give rise to clumsy layouts.

continued from page 89

hence Disraeli's famous missive: "There are three kinds of lies: lies, damned lies and statistics."

Similarly, a human population tends to be biased in itself. In The Beer Test it is almost impossible to determine what makes people join the Redcar Sports Club because the survey is only being conducted among existing members. Even with this taken into consideration, fairly accurate statistical results must be used with care; as Andrew Lang once said, "He uses statistics as a

WHOOPS!

Sorry, I didn't mean to say that. A slight error turned up in last month's copy: *Superbase 4's* DML does not feature the REPEAT...UNTIL construct.

drunken man uses a lamppost – for support rather than illumination". Particularly apt in this case...

QUESTION SETTING

T minus 14 days

With the above in mind, the questions were set with a view to determining the age range and sex of the population, where they came from, on which days they used the Club, what they drank, which facilities they used and so on. As the returned forms have proved, not all of these questions were worded as well as they should have been. For example:

Age
 18-24 ☐ 25-34 ☐
 35-44 ☐ 45-54 ☐
 55 or over ☐

Here the membership has been divided into five distinct age categories. This will help determine the statistical type of people being attracted. The youngest group (18-24) are the first-time drinkers –

young men and women with lots of disposable income. The next group up (25-34) will be those just starting families, buying their first home and so on; they are likely to have much less disposable income than their younger peers. Moving to the 35-44 year age range we find parents of older youngsters on their second home, perhaps where the wife has returned to work.

In the 45-54 year age range there may be a slight anomaly – biased mainly by Redcar's location in the far north-east of England. Typically here, women of this age are not expected to work at all – not even part-time. Also, although any children will have grown up and left home, and mortgages will have been paid off, this group will have less disposable income than the previous group. This also applies to the over 55s, where people are reaching retirement and tend towards a more relaxed lifestyle. The latter group also includes full pensioners.

Another example:

Where you live

Redcar ☐ New Markse ☐
 Marske ☐ Guisborough ☐
 Saltburn ☐ Skelton, etc ☐

The answers to this question is divided into six major groups determined by the local geography around Redcar. Since Redcar is where the majority of the membership live, this is listed first. Marske and New Marske are a situated about 2 miles to the west and south respectively. Guisborough, Skelton, Brotton and Saltburn are all around 7-10 miles away with excellent communications.

However, the fault is that no provision has been made for 'other areas' like Middlesbrough, Stockton and so on. Even though these are larger towns with generally better facilities than the rural communities around Redcar, some people may come from there for special events. The same also applies to the

questions on profession – here there was no provision for housewives or, again, an 'other' category.

Worst of all, two categories included a 'Never' check box which should have read 'Don't know'. These mistakes (which were entirely mine) are painfully obvious when pointed out. However it went unnoticed by the whole team – which included a retired maths teacher – until one of the people surveyed pointed it out! There is a lesson here: we tend to put too much reliance on experts and often forget to use our own judgement. This extends to the machines: learn to question the results, because computer operators have been known to make mistakes.

Camera-ready artwork was laser printed on a Macintosh SE from a Microsoft Word document. An Amiga running a similar system, *Pagestream* or *ProPage* for instance, could have been used and would have done the job just as well. This was then despatched to a local printer for production on double-sided A4 copier paper. Accounting for materials and external costs the whole job came in at under £40 for 500 sheets – affordable even for a small business.

This phase of the survey was the last one to involve the club itself. Blank forms were distributed over a 14 day period (Sunday to Sunday) to allow people enough time to

complete and return them. Altogether, just under 250 forms were distributed and 173 were returned complete and undamaged.

DATABASE DESIGN

During this time, The Beer Test entry forms were being designed on *Superbase Professional 4*. In order to avoid contravening the Data Protection Act, no space exists on the database for people's names or membership numbers. In this way the data is for a statistical population and not 'people' as such. (If you intend keeping any personal records on computer you must register with the Data Protection Registrar beforehand.)

Designing a database to store information such as this offers some interesting problems – chiefly multiple choice lists. Consider the example earlier where respondents are asked for their age. In the database this can be represented by a single field with any one of five different values. For a conventional database, this value must be entered manually by a clerk – usually using a master template:

Age
 18-24 ☐ (1) 25-34 ☐ (2)
 35-44 ☐ (3) 45-54 ☐ (4)
 55 or over ☐ (5)

Here, the clerk can cross reference the age to a value and enter it

LISTING 1 • LISTING 1 • LISTING 1

```
OPEN FILE "CLUBDATA"
REPORT SUMMARIZE
HEADING
? @9;"Male usage by Age range":?
? @27;"Number";@37;"Percentage"
? @27;"=====";@37;"====="
END HEADING
GROUP Age
BEFORE GROUP Age
SELECT CASE Age
CASE "1":a$ = "18-24"
CASE "2":a$ = "25-34"
CASE "3":a$ = "35-44"
CASE "4":a$ = "45-54"
CASE "5":a$ = "55 or over"
END SELECT
END GROUP
AFTER GROUP Age
? "Total number ";a$;@25&]4; COUNT ;@35" ("&]2; COUNT /
RECCOUNT ("") * 100;"%)
END GROUP
SELECT ;
ORDER Age ASCENDING
WHERE Sex = "M"
END SELECT
```

This typical report program was generated by the forms editor and then finished off by hand. A lot more 'touching-up' could be applied to improve the final output, such as centring the title for instance.

	Bar	Lounge	Concert Room	(Regularly)
Sunday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

directly. This approach suffers from two distinct problems: it's very slow and, more importantly, because it relies on the typing accuracy of the clerk it's extremely prone to human error. Errors of this sort are extremely difficult to spot and can give rise to dramatic inaccuracies in the final figures.

One solution would be to have two clerks, on two machines – one entering data and the other checking it. But this would need either constant swapping of disks or networked computers. Another option would be to use a separate database accessed under program control which could present a list of possible entries in a menu.

Superbase Professional (and some PC-based systems) have a facility to do this (or something like it) already.

Superbase Professional 4 supports a facility for this in its form-based radio buttons. These allow multiple choice data to be entered easily and automatically – thus reducing the possibility of errors to a minimum. A good facility of radio buttons is the option to extend each button's active area (see the diagram on the previous page), which allows the clerk to enter data by just clicking on the selection. However, the area can only be extended below and to the right of the original point. Why is this a problem? Well, we read from left to right, and therefore it is better to have the tick box to the right of each choice – otherwise you would have to read the selection and go back to the box.

Field validation can be used to ensure that data is actually entered when required. This revealed another unwelcome feature to the list of problems I was compiling for Precision, the company which produces *Superbase* – validations are only made when the form is completed. If an error occurs, for

Above and right: wanting to have several different categories can lead to the database needing a large number of fields.

example if an input has been missed, the clerk has to manually navigate to the source of the error.

This problem can, in theory, be caught by DML (the database management language). But that requires logic to work out whereabouts on the form the offending field, button or check box is. Also, since radio buttons cannot be 'undone', optional groups require either a cancel button or a DML-controlled clear button in case of error.

Returning to the form, there are some areas where more than one response is required. For example, for the attendance I wanted to be able to separate the regular users from the occasional users. Regular is defined here as using the club on any day twice a month or more.

Taking the whole week into account, this requires a total of 14 fields. Seven are used for the days a person attends any room (any one of the three – this is a radio button group). The other seven are used for the 'Regular' option, and these are defined as check boxes. When the reports are being compiled, these two fields can be tied together – the regular field is used as a filter when appropriate. To summarise all of this, the file is constructed with fields as shown in the table at the top of the page.

In order to save space, most of the text fields are only one character wide. This is translated into more readable information by the reporting programs and is easier to test for in filters. This also ensures a certain amount of data security because without the form and reporting programs, the data is all but meaningless.

	Fields	Validations	Values	Objects
Member type	1 text	Required	3	Radio buttons
Age group	1 text	Required	5	Radio buttons
Profession	1 text	Required	11	Radio buttons
Daily usage	7 + 7 text	None	3 + 1	Radio + check
Activities used	23 + 23 text	None	2 + 2	Radio buttons
Preferred drinks	13 text	None	4	Radio buttons
Scores	16 numeric	None	1	Fields

The only likely source of confusion in the table above are the values. The figures shown represent the number of possible choices stored in each field. For instance, the 'member type' field has one of three values determined by a radio button. Similarly, daily usage is split: seven fields with any one of three values each (representing the rooms) and seven fields with one value set for regular users.

Once the file had been constructed, the form was created; and what should have been a fairly simple, if laborious, task turned out to be a nightmare. My experiences creating this particular form led to my conclusions on *Superbase Pro 4* last month. (Since then I have had another update of *Superbase* and can report that at least some of the bugs are now fixed.)

STATISTICAL STUFF

As the saying goes, a picture tells a thousand words. (If that's true then the art room can compress this article into three drawings and I'm out of a job!) Flippancy aside, statistical data mapped on to a graph can say much more about trends than pure figures. Most databases have some sort of reporting facility built in, although *Superbase* has the best on the Amiga. Even so, very few databases have the capability to produce graphics based on those results. For this task I have chosen Gold Disk's *Advantage* program because it's fast and easy to use – but you'll have to wait until next month for the full details of how I used it, and what problems I had.

Until then, the table on the left is an example of the sort of report you can expect to see. This was produced by the *Superbase* DML program shown in Listing 1. Percentage figures shown in brackets demonstrate that the majority of male club members answering the survey, over a third, are over 45

years of age. Just by changing a single character in the listing we can get results for the women too.

THE END?

Not yet. By asking the right questions it is easy to prove, for example, how many men aged between 35 and 54 wear a digital watch, drink lager from a can and like to listen to Brahms with their legs crossed... (For more

I am indebted to the members, staff and committee of the Club used in this survey for without whose help and assistance this test would never have been possible.

information – and ironically humorous tales – consult *How to Lie with Statistics* by Darrell Huff, ISBN 0 14 02 1300 7.) In practice, given the right set of data you can keep on analysing until the cows come home.

Next month I'll be looking at reporting in much more detail. As a taster of what's coming: the data set produced by analysis of this survey produced over 60 graphs – mostly pie and bar charts; enough to fill *Amiga Shopper* and far too many for the average manager to take in. Next month I'll be showing how to eliminate the anomalies and interpret the data; although even then you can only be 95 per cent sure of the results... **AS**

MALE USAGE BY AGE RANGE

	Number	Percentage of total membership
Total number 18-24	7	(4%)
Total number 25-34	9	(5%)
Total number 35-44	15	(9%)
Total number 45-54	29	(17%)
Total number 55 or over	30	(17%)

When properly set up, a database can produce useful results.

SHOPPING LIST

Superbase Professional.....£411.20

Supplied by Precision Software

6 Park Terrace
Worcester Park
Surrey KT4 7JZ
☎ 081-330 7166

Cliff's Code Conundrum

Here it is at last, folks: the winning answer to the first Code Conundrum. As you may remember, the task was to write a program to plot the motion of the Earth, Moon and Sun.

Many thanks for all of your entries. The standard was excellent.

The winner was R Broughton of Farnborough in Hampshire, who will be receiving £50.

One of the problems which he overcame was the fact that the Earth-Moon orbit is 400 times smaller than the Earth-Sun orbit, creating a difficulty in drawing everything on the Amiga's screen. He got around this by individually scaling the two halves of the system. A further difficulty was introduced by

Technical editor Cliff Ramshaw presents the answer to the Code Conundrum set in issue 3

the PD Sozobon C compiler, which is unable to handle numbers over 1×10^{19} in size. Because of this, he decided to scale all physical values in terms of the Moon.

His program is written in C, and is unfortunately too long to print in its entirety here. We will be putting it in the 'amigashopper' conference on CIX, but in the meantime, I'll print some of the more salient excerpts and explain what is going on.

The program begins by defining

several constants, mostly of use in the plotting stage – especially complicated because of the difference in scale between the Earth-Moon and Earth-Sun systems.

Then, a structure called 'Body' is declared. This is used to hold the position, velocity and acceleration of each mass, in terms of x and y components. After that, the data is initialised for a custom screen, a window and some sprites. Then comes the 'main' section of the code, which works by calling a succession of functions, the most important of which is motions().

Motions() initialises the positions and velocities of the three planets. It then goes on to check for the mouse button being pressed (in which case the program finishes) then plots the planets, calculates their new accelerations, velocities and positions, and loops around to do it all again. All of this is done by calling a series of functions.

The initmotions() function sets up the initial positions and velocities of the three planets. The Sun is defined to be at the origin of the system, which starts with all three bodies in a horizontal line, so that the Earth and Moon y coordinates are both zero. The Earth's x coordinate is simply its distance from the Sun; the Moon's is the sum of its distance from the Earth and the Earth's distance from the Sun.

The initial velocities are calculated from the formula

$$V^2 = G(M_1 + M_2)/r$$

which gives the relative velocities of two masses, M_1 and M_2 . The Earth and Moon are treated as one unit, and V is calculated for this collective mass relative to the Sun. The distance used is from the Sun to the centre of gravity of the Earth/Moon system.

Having found this, the function goes on to find the relative velocity between the Earth and Moon using the same formula. This is added to and subtracted from the velocity already found, giving the Earth's and Moon's velocities respectively.

```
initmotions()
{
    float xc,vc,vem;
    suninfo.x = 0;
    suninfo.y = 0;
    suninfo.vx = 0;
    suninfo.vy = 0;
    suninfo.ax = 0;
    suninfo.ay = 0;
    /* centre of gravity of
    earth-moon system */
    xc = (EARTHMASS*EARTHORBIT +
    MOONMASS*(EARTHORBIT+MOONORB
    IT))/(EARTHMASS+MOONMASS);
    /* velocity of centre of
    gravity around sun */
    vc = sqrt(GRAVITY*(MOONMASS
    +EARTHMASS+SUNMASS)/xc);
    /* relative speeds of moon
    and earth */
    vem=sqrt(GRAVITY*(EARTHMASS+
    MOONMASS) / MOONORBIT);
    /* earth start conditions */
    earthinfo.x = EARTHORBIT;
    earthinfo.y = 0;
    earthinfo.vx = 0;
    earthinfo.vy = vc+MOONMASS
    *vem/(EARTHMASS+MOONMASS);
    earthinfo.ax = 0;
    earthinfo.ay = 0;
    /* moon start conditions */
```

```
mooninfo.x = EARTHORBIT
+MOONORBIT;
mooninfo.y = 0;
mooninfo.vx = 0;
mooninfo.vy = vc-EARTHMASS*
vem/(EARTHMASS+MOONMASS);
mooninfo.ay = 0;
mooninfo.ay = 0;
}
```

The section to work out the forces on the bodies and translate these into accelerations is shown in listing 1.

Each of the bodies' velocities is altered by the velocity() function, using the equation

$$v=u+a*dt$$

where dt is a time step small enough to make the motions accurate. The velocities are shifted relative to the Sun's velocity, so the Sun remains at the centre of the screen:

```
velocities()
{
    suninfo.vx=suninfo.vx+dt*
    suninfo.ax;
    suninfo.vy=suninfo.vy+dt*
    suninfo.ay;
    earthinfo.vx=earthinfo.vx+dt*
    *earthinfo.ax;
    earthinfo.vy=earthinfo.vy+dt*
    *earthinfo.ay;
    mooninfo.vx=mooninfo.vx+dt*
    mooninfo.ax;
    mooninfo.vy=mooninfo.vy+dt*
    mooninfo.ay;
    /* normalise velocities */
    earthinfo.vx=earthinfo.vx-
    suninfo.vx;
    earthinfo.vy=earthinfo.vy-
    suninfo.vy;
    mooninfo.vx=mooninfo.vx-
    suninfo.vx;
    mooninfo.vy=mooninfo.vy-
    suninfo.vy;
    suninfo.vx=0;
    suninfo.vy=0;
}
```

Finally, the planets' positions are updated according to their velocities:

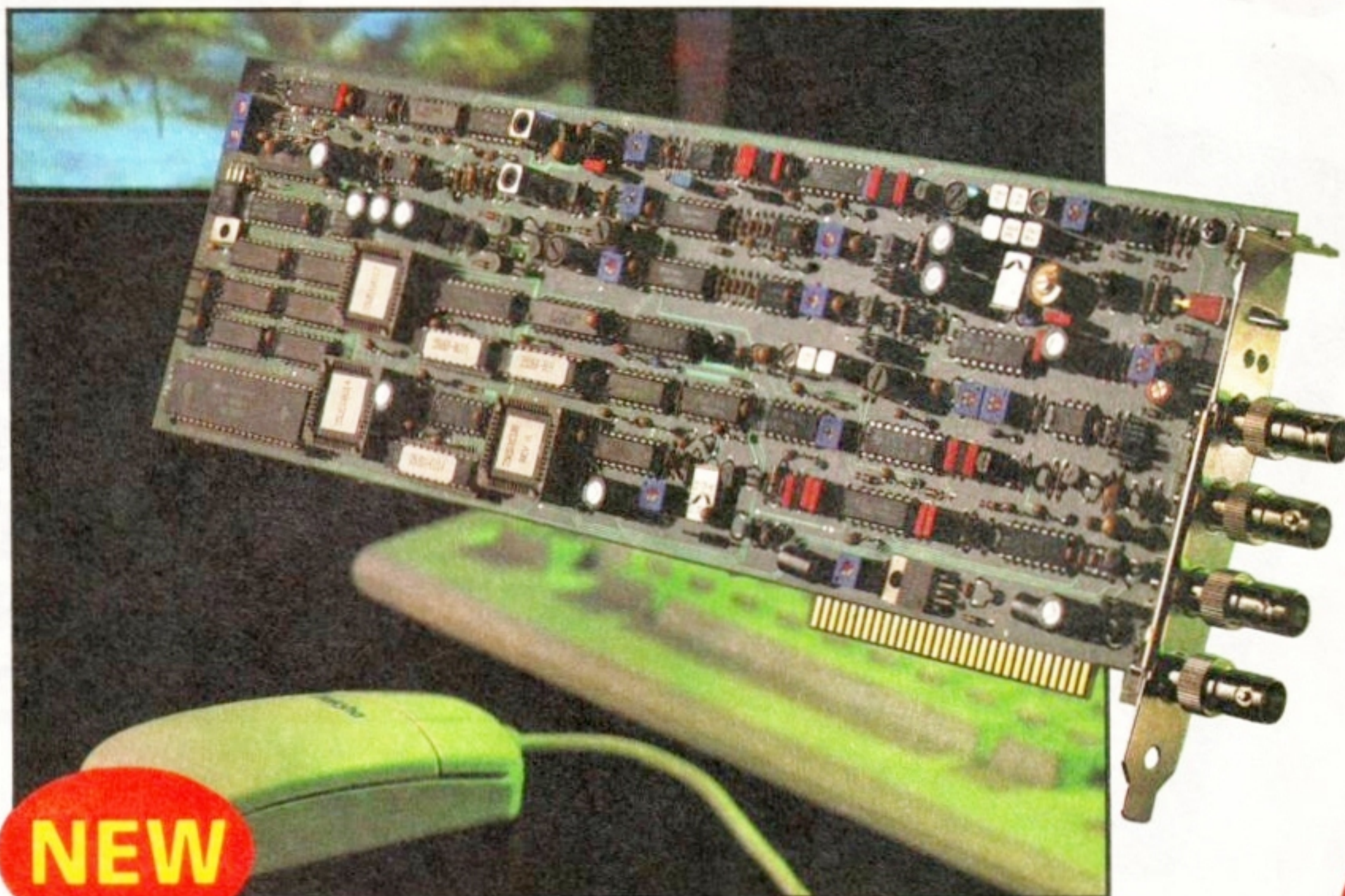
```
positions()
{
    earthinfo.x=earthinfo.x+dt*
    earthinfo.vx;
    earthinfo.y=earthinfo.y+dt*
    earthinfo.vy;
    mooninfo.x=mooninfo.x+dt*
    mooninfo.vx;
    mooninfo.y=mooninfo.y+dt*
    mooninfo.vy;
}
```

Those of you wondering where this month's conundrum is had better divert your attention to the fractal supplement. That's all for now! **AS**

LISTING 1 • LISTING 1

```
accelerations()
{
    /* variable declarations for use by
    this function */
    /*sun-earth dist (squared)*/
    d2se=(earthinfo.x*earthinfo.x)+(earth
    info.y*earthinfo.y);
    /*sun-moon dist (squared)*/
    d2ms=(mooninfo.x*mooninfo.x)+(mooninfo
    .y*mooninfo.y);
    dxem=earthinfo.x-mooninfo.x;
    dyem=earthinfo.y-mooninfo.y;
    /*moon-earth dist (squared)*/
    d2em=(dxem*dxem)+(dyem*dyem);
    /* force exerted along line joining
    centres of bodies */
    /* sun - earth */
    fse=GRAVITY*EARTHMASS*SUNMASS/d2se;
    /* sun - moon */
    fms=GRAVITY*MOONMASS*SUNMASS/d2ms;
    /* earth - moon */
    fem=GRAVITY*MOONMASS*EARTHMASS/d2em;
    /* sun - earth distance */
    dse = sqrt(d2se);
    /* sun - moon distance */
    dem = sqrt(d2em);
    /* earth - moon distance */
    dms = sqrt(d2ms);
    /*find components of forces*/
    /* force between earth & sun +ve for
    sun -ve for earth */
    /* relative to sun */
    fsex=fse*(earthinfo.x-suninfo.x)/dse;
    fsey=fse*(earthinfo.y-suninfo.y)/dse;
    /*force between earth&moon*/
    femx=fem*(mooninfo.x-earthinfo.x)/dem;
    femy=fem*(mooninfo.y-earthinfo.y)/dem;
    /*force between moon & sun*/
    fmsx=fms*(suninfo.x-mooninfo.x)/dms;
    fmsy=fms*(suninfo.y-mooninfo.y)/dms;
    /*add forces and calculate
    accelerations*/
    suninfo.ax=(fsex-fmsx)/SUNMASS;
    suninfo.ay=(fsey-fmsy)/SUNMASS;
    earthinfo.ax=(femx-fsex)/EARTHMASS;
    earthinfo.ay=(femy-fsey)/EARTHMASS;
    mooninfo.ax=(fmsx-femx)/MOONMASS;
    mooninfo.ay=(fmsy-femy)/MOONMASS;
}
```


The First Personal TBC Has Arrived!



NEW

- TBC – frame store on a PC, plug-in card.
- Compatible to AMIGA 2000, IBM PC, any ISA Bus Computer.

Features

- Colour correction to remove colour cast
- Frame grabber
- Proc-amp controls via PC software
- 19" rackmount version available
- Single or dual channel available
- Astonishing value

Contact: RGB Dynamics Limited, Market House,
4 Bridge Street, Leighton Buzzard, Bedfordshire LU7 7AL
Tel: (0525) 377340/(0525) 384057. Fax: (0525) 851269

Benefits

- Eradicates tape deterioration during copying
- Enhances transfer quality
- Provides stable synchronised input/output for multi media applications

The DPS PERSONAL TBC Model VT-1000 desk-top peripheral enables virtually any VCR, camcorder, laser disk player or video camera to be interfaced with computer video systems. The PERSONAL TBC incorporates a full frame TBC/Synchronizer on a single PC expansion card which is compatible with the Amiga 2000 series and all IBM-PC and other ISA bus computers. Multiple cards may be used in one system.

The PERSONAL TBC is the ideal tool for A/B roll editing and other multi-source video applications. Genlockable. Full frame storage to TBC or synchronize any source. PAL or Y/C 4.43 (S-VHS, HI 8) inputs.



DIGITAL

Dynamics

RGB

GENIUS DIGITIZING TABLET

£129.⁹⁹

COMPLETE FOR THE

AMIGA

ADD A
PROFESSIONAL
TOUCH TO YOUR
DRAWING / CAD
WORK



- With the Amiga Genitizer graphics tablet you can streamline the operation of most graphic or CAD programs.
- The Genitizer graphics tablet utilises latest technology to offer up to 1000 dpi resolution at the tip of a stylus
- Complete 9" x 6" digitizing area plus super accurate stylus combine to enable fast, accurate and easy control
- Works by "mouse emulation" so the Genitizer will work with most packages where mouse input is the usual method - Deluxe Paint, Photon Paint, CAD Packages etc. etc.
- Supplied with template for Deluxe Paint.
- Full easy to follow instructions.
- This is the input method used on professional systems - now you can add a new dimension to graphics/CAD.
- Fast input of drawing by "tracing" is made easy - plus "absolute reference" means you can move around the screen many times faster than by a mouse.
- The Genitizer fits in the serial port of your Amiga 500/1000/2000 and "co-exists" with mouse.
- Unlike a mouse the Tablet gives absolute co-ordinates so that tracking and menu selections are possible from the tablet face.
- A pressure sensitive switch built into the stylus tip activates the Tablet overriding the normal mouse input. When you are not using the Tablet you have normal mouse control
- Complete system - Graphics Digitizer Tablet, Stylus, Deluxe Paint Template, Power Adaptor, Test Software, Interface Unit plus Driver program - no more to buy!

HOW TO GET YOUR ORDER FAST!

TELEPHONE [24Hrs] **0782 744707** CREDIT CARD ORDERS
ORDERS NORMALLY DISPATCHED WITHIN 48 Hrs. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO....



DATEL ELECTRONICS LTD.



GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND.
FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324



L i m i t e d

VIDEO DIGITIZER II



ONLY
£89.99

NOW YOU CAN DIGITIZE PICTURES FROM ANY VIDEO CAMERA OR VCR

- Completely newly designed interface that plugs into the expansion connector of the Amiga 500 or internal connector of the Amiga 2000.
- Standard phono video input 0.5 to 2.0 volts to take signals from TV, video or camera.
- Control brightness, contrast and throughport on A500 version.
- Frame grab in 1/50 second, record update up to 3 frames per second.
- Single or continuous update in 4, 8 or 16 grey levels.
- Play frames backwards or forwards up to 15 frames per second.
- Save Raw, IFF or sequence files.
- Automatically adjust for maximum number of frames according to memory available.

- Display 256 x 256 pixels, but optional 320 x 256 IFF Save.
- Screen editing features Cut, Copy, Brush, Paste and Undo. Effects menu to reverse pos/neg, compress, etc.
- Second display editor controls sequence production: Record, Play, Insert, Clear, Delete Frames.
- Set start and end position number of frames saved, number frames, step backwards and forwards, loop, etc. Time lapse feature adjustable in 1 second increments to 1 hour between each frame. Ideal for capturing flowers opening, sky movements, special effects, etc.
- Separate player programs included to insert into your own program disks. Hard disk transfer program.
- Please state A500 or 2000 version when ordering.



NOW WITH FULL COLOUR — OPTION —

**WITH THE ADDITION OF THE RGB SPLITTER,
TO THE VIDEO DIGITISER II YOU CAN OBTAIN
COLOUR IMAGES IN ONLY 1 SECOND!!**

- The Splitter unit plugs alongside the Digitiser and a lead is supplied to couple the two units together.
- Full adjustment of Red, Green and Blue signals together with a saturation control enabling you to take full control over any image.
- The Splitter is switched in software and comes complete with Digitiser Colour Software.
- You can select single continuous colour or B/W input. Files can be saved in Raw 4096 colour format, 8 or 32 colour IFF files or 16 shade B/W IFF.
- Features include full palette control editing of frame and colour retouch calculator.
- Input from camera, camcorder or video recorder (paused). No more messing with colour filters.

RGB COLOUR SPLITTER
ONLY £79.99

**BUY VIDEO DIGITISER II PLUS
RGB COLOUR SPLITTER FOR**
ONLY £149.99

HOW TO GET YOUR ORDER FAST!

TELEPHONE [24Hrs] **0782 744707** CREDIT CARD ORDERS

ORDERS NORMALLY DISPATCHED WITHIN 48 Hrs. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...



DATEL ELECTRONICS LTD.



GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND.

FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324

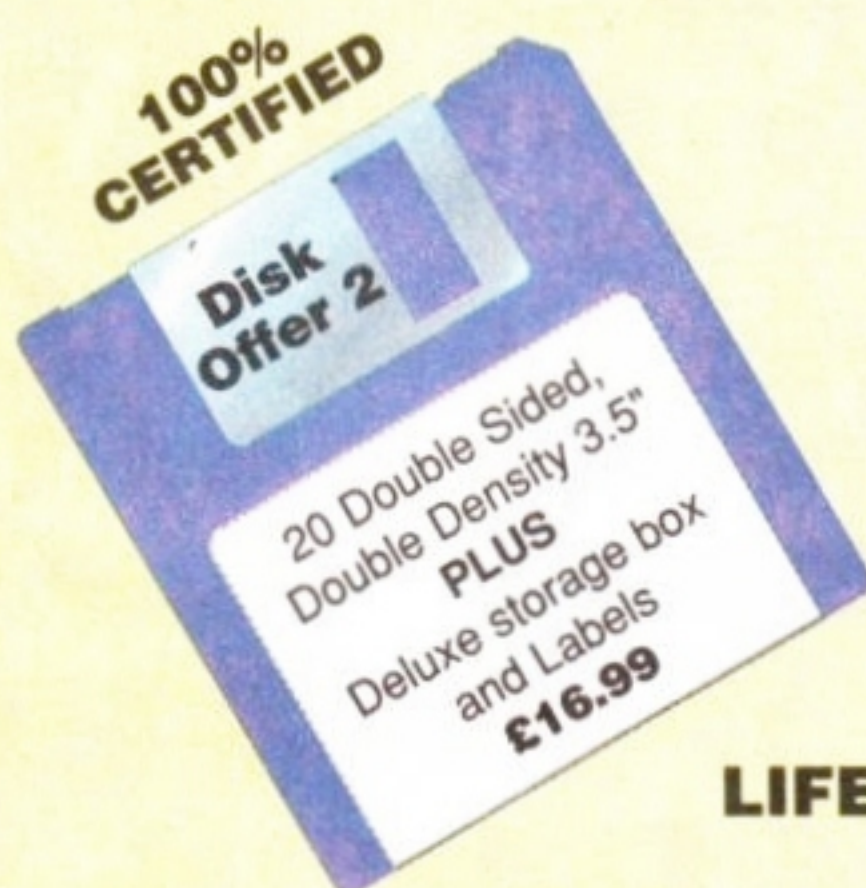
A/F VIDIGI



PUBLIC APOLOGY

M. D. Office Supplies would like to apologise to all its competitors in this magazine. As ever we shall be offering Diskettes, Storage Boxes, etc at prices which are simply INCREDIBLE

JUST LOOK AT THESE SUPERB OFFERS



LIFETIME DISKETTE WARRANTY



ALL STORAGE BOXES SUPPLIED ARE
ANTI STATIC, LOCKABLE, HAVE
AMPLE DIVIDERS AND TWO KEYS

'MAGIC MEDIA' HIGH DENSITY 3.5" DISCS

10 DS HD 3.5" 1.44 MEG DISCS IN LIBRARY CASE.....	£14.99
30 DS HD 3.5" 1.44 MEG DISCS WITH STORAGE BOX.....	£39.95
50 DS HD 3.5" 1.44 MEG DISCS WITH STORAGE BOX.....	£49.95
100 DS HD 3.5" 1.44 MEG DISCS WITH STORAGE BOX.....	£64.99

(AS EVER LIFETIME GUARANTEED, UNQUESTIONABLE QUALITY)

5.25" 'MAGIC MEDIA' DS DD DISCS

20 DS DD 5.25" 720K DISCS WITH OUR DELUXE STORAGE BOX.....	£13.95
50 DS DD 5.25" 720K DISCS WITH OUR DELUXE STORAGE BOX.....	£19.95
70 DS DD 5.25" 720K DISCS WITH OUR DELUXE STORAGE BOX.....	£23.95
100 DS DD 5.25" 720K DISCS WITH OUR DELUXE STORAGE BOX.....	£29.95
200 DS DD 5.25" 720K DISCS WITH 2 DELUXE STORAGE BOXES.....	£54.95

What can we say, simply these are the best value money can buy. These diskettes are packed in 10's, certificated, tested, 100% quality product
YOU CANNOT BUY BETTER

ACCESSORIES

100 CAPACITY 3.5" LOCKABLE STORAGE BOX.....	£7.95
100 CAPACITY 5.25" LOCKABLE STORAGE BOX.....	£7.95
3.5" OR 5.25" PACK OF 5 LIBRARY CASES.....	£4.95
TILT N TURN MONITOR STAND.....	£12.95
UNIVERSAL PRINTER STAND.....	£7.95
PROFESSIONAL PRINTER STAND.....	£24.95
3.5" OR 5.25" HEAD CLEANERS.....	£2.95
DELUXE MOUSE MATS.....	£2.95
ROLL OF 1000 3.5" DISKETTE LABELS.....	£12.95

BRILLIANT EXCITING NEW PRODUCT

Re-Ink the product that will allow you to re-use your fabric ribbons up to 50 times. Sounds amazing and it is, just think of the saving you will make.
1 can of Re-Ink is all you need, and the price!

£12.95!
Simply Incredible!

BANX BOXES

BY OVERWHELMING PUBLIC DEMAND
WE ARE NOW ABLE TO OFFER THESE BOXES
AGAIN. THEY STACK HORIZONTALLY
OR VERTICALLY.
FIRST COME - FIRST SERVED
ONLY **£8.95**

ATARI REPLACEMENT MICE

Probably the best two mice on the market.
Logitek or Naksha, host of features, reliable, very
smooth operation, superb value and best of all
only **£29.99**

18 CRESCENT WAY, FARNBOROUGH, KENT BR6 9LS. TELESales HOTLINE: 0689-861400

(All prices quoted are inclusive of VAT and carriage UK Mainland only) E.&O.E.
EDUCATIONAL & GOVERNMENT ORDERS WELCOME



Welcome to the wild world of AMOS. I've been merrily compiling everything in sight since I got the compiler last month, and very few programs have tripped up – which is a testament to the bug testing at Europress Software and the skill of Francois Lionet. I haven't yet had a chance to talk to Francois, and I guess this will have to go on the back burner for a bit until he's free again. But AMOS 3D is out as we speak, and I'll be covering that for sure next time.

This month I want to talk to you about screens, and how to flip them around in AMOS.

NURSE, THE SCREENS!

AMOS has some very powerful commands for the manipulation of screens and their contents. We all know about the 'Screen Open'

continued on page 96

AMOS action

This month Phil South looks at the AMOS Animation Language, creating and moving screens and much, much more...



"Welcome to the AMOS column, the place where every month you can find tutorials and lots of hints and tips for use with Europress' AMOS Basic interpreter, along with its ancilliary programs."

Phil South

AMOS HINTS AND TIPS

Every month I will be printing hints and tips on AMOS from my own sources and from you, the readers. If you have any hints and tips (preferably accompanied by mini listings) you want to send me, whack them on paper or – even better – on a disk and send them to: Phil South, AMOS Column, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW. Or you can e-mail me on CIX (snouty@cix.compulink.co.uk), Micronet (219997854), Telecom Gold (74:MIK2077) or The Direct Connection (uad1135@dircon.uucp).

• Many of you responded to my question about quadratic equations, but the best entry was from Richard Padley. Richard says in his letter that he doesn't even have an Amiga, but reads *Amiga Shopper* because he likes it! Blimey! I had to change some of the lines from the letter to make it more AMOS-friendly, but that was just a matter of format. Even though he's not an AMOSser he certainly knows his onions mathematically speaking, as this rather elegant program testifies:

' QUAD by Richard Padley

Screen Open 0,640,256,2,Hires

MAIN:

Print "This prog solves the quadratic equation"

Print : Print " ax^2+bx+c=0"

Print : Print "Please enter the coefficients a,b and c."

Print: Input "a:";A#

Input "b:";B#

Input "c:";C#

Print

R#=(B#^2-4*A#*C#)

If R#>=0 Then Goto REAL Else Goto IMAGINARY

REAL:

X1#=(-B#+R#^0.5)/(2*A#)

X2#=(-B#-R#^0.5)/(2*A#)

If R#=0 Then Print "The solution is real where x=";X1# Else Print "The solutions are real where x=";X1#;"and x=";X2#

Goto ND

IMAGINARY:

R#=(B#)

REALPART#=-B#/(2*A#)

IMAG1#=(R#^0.5)/(2*A#)

IMAG2#=(R#^0.5)/(2*A#)

Print "The solutions are complex where

x=";REALPART#;"+";Abs(IMAG1#);"i and

x=";REALPART#;"-" ;Abs(IMAG2#);"i"

ND:

Print "Again? (Y/N)"

X\$=Input\$(1)

If Upper\$(X\$)="Y" Then Cls : Goto MAIN

I like the brevity and clarity of that program, and the fact that it worked first time is neat because I typed it into AMOS from Richard's letter, and not from a listing! Many thanks to all of you who gave it a crack.

• And now a jazzy 3D requester from Chris Hurst, which really is something very special and brings all manner of very neat Workbench 2 and 3D-type projects to mind. Very well done, Chris, let's have some more of the same. How about a 3D menu?

Rem A sort of 3D Requester!

Rem (c) Chris Hurst 1991

Rem

Default

Paper 0 : Pen 2 : Cls : Curs Off

REQ["THE NEW 3D REQUESTER BY CHRIS","HURST! "

HOPE YOU LIKE IT","CARRY ON",""]

Print "Program Loop. Press Q to Quit"

Z=0

MAINLOOP

Procedure MAINLOOP

Shared Z

Do

K\$=Upper\$(Inkey\$)

If K\$="Q" Then REQ["user selected quit

option","please confirm","Okay!","Cancel"]

If Mouse Key=2 Then REQ["User selected mouse

option","please confirm","Okay","Cancel"]

If Z=1 Then REQ["Quit confirmed","Bye","Bye",""] : End

If Z=2 Then Z=0

Loop

End Proc

Procedure REQ[T1\$,T2\$,B1\$,B2\$]

Shared Z

Screen Open 7,640,60,4,Hires

Screen Display 7,130,110,,

Limit Mouse 215,110 To 350,155

Show

Flash Off

Paper 0 : Cls : Curs Off

Palette \$0,\$444,\$777,\$FFF

Reserve Zone 2

If Len(T1\$)>33 Then T1\$=Left\$(T1\$,33)

If Len(T2\$)>33 Then T2\$=Left\$(T2\$,33)

If Len(B1\$)>8 Then B1\$=Left\$(B1\$,8)

If Len(B2\$)>8 Then B2\$=Left\$(B2\$,8)

Ink 1 : Bar 170,0 To 470,52

Ink 3 : Bar 171,1 To 470,59

Ink 2 : Bar 171,1 To 468,58

Ink 0 : Box 180,10 To 458,30

Ink 3 : Draw 180,30 To 458,30

Ink 3 : Draw 458,30 To 458,10

If Len(B1\$)>0

Ink 3 : Box 200,37 To 270,52

Ink 0 : Draw 200,52 To 270,52

Ink 0 : Draw 270,52 To 270,37

End If

If Len(B2\$)>0

Ink 3 : Box 360,37 To 430,52

Ink 0 : Draw 360,52 To 430,52

Ink 0 : Draw 430,52 To 430,37

End If

Ink 0,2

Text 184,19,T1\$

Text 184,27,T2\$

Text 204,47,B1\$

Text 364,47,B2\$

If Len(B1\$)>0 Then Set Zone 1,200,37 To 270,52

If Len(B2\$)>0 Then Set Zone 2,360,37 To 430,52

Do

Z=Mouse Zone

If Z=1 and Mouse Key=1 Then Ink 0 : Box

200,37 To 270,52 : Ink 3 : Draw 200,52 To

270,52 : Ink 3 : Draw 270,52 To 270,37 :

Bell 70 : Wait 10 : Screen Close 7 :

Limit Mouse : Pop Proc

If Z=2 and Mouse Key=1 Then Ink 0 : Box

360,37 To 430,52 : Ink 3 : Draw 360,52 To

430,52 : Ink 3 : Draw 430,52 To 430,37 :

Bell 40 : Wait 10 : Screen Close 7 :

Limit Mouse : Pop Proc

Loop

End Proc

continued from page 95

command, as I use it regularly in programs I print here. But what about moving screens around once you have them defined and loaded?

'Screen Hide' will take a screen you've loaded and send it away somewhere until it is needed. To show it again, you just need to use the 'Screen Show' command. As always in AMOS, Show/Hide are the exact opposite.

'Screen Copy' is used as a part of the process of scrolling all or part of screens, in combination with 'Def Scroll', 'Scroll' and 'Screen Swap', as we see in this example (which, sadly, will only work on machines with 1Mb or more of RAM):

```
Load If "name your path" 1
and picture here", 1
Screen Open 0,320,256,32,Lowres
Get Palette 1 : Curs Off :
Flash Off
Screen Copy 1 To 0 : Screen 0
Double Buffer : Bob Update Off
```

```
S=2
Rem Define scrolls
Def Scroll 1,80,80 To 240,
240,0,-S : Rem scroll screen
Repeat
For Y=0 To 199 Step S
Scroll 1
Screen Copy 1,80,Y,240,Y+S
To 0,80,240-S
Screen Swap
Screen Copy 1,80,Y,240,Y+S
To 0,80,240-S
Wait Vbl
Next Y
Screen Swap : Wait Vbl : Scroll 1
Until Mouse Key
```

The screen you choose is loaded, and an area defined by the 'Def Scroll' statement is scrolled upwards using the Repeat...Until loop. This is done smoothly and continuously until the mouse button is pressed, at which time the program ends. Screen swap has an invisible screen (called the 'logical screen') on which it renders things - like scrolls, for

example. When the object or screen has been modified, the results are copied to the real screen. Logical screens are very useful for smoothing otherwise slow or clunky rendering routines. Try the example above and alter the settings to see how it changes when you tweak certain parts of the program, particularly the 'Def Scroll' and 'Screen Copy' lines.

DEMO CORNER

One of the best and most interesting demos I've seen this month is *Niall 2*, from APDL disk 164. *Niall* is an artificial intelligence program, a sort of second generation of the old *Eliza* program. Like a parser in an adventure game, the program makes an attempt to make some sense out of random conversational input. As you use the program, its vocabulary gets bigger. Then you start to get the spooky feeling that there is someone in there talking back at you, learning and sometimes even poking fun at

you. Most of this is chance, but the effect is very entertaining.

And that's all we have time for this month. Next issue I'll be doing part two of the AMAL tutorial, and looking in depth at using AMOS 3D. See you then! **AS**

SHOPPING LIST

AMOS can be obtained from your local stockist or from:

Europress Software
Europa House, Adlington Park,
Macclesfield, SK10 4NP
☎ 0625 859333

All AMOS PD software can be obtained from:

AMOS PD Library
25 Park Road,
Wigan WN6 7AA.
☎ 0942 495261

INTRODUCTION TO AMAL: PART 1

I've been saying that I was going to get around to AMAL for a few issues now, and finally the time is upon us. AMAL is the AMOS Animation Language, and is a powerful way of animating things you move around the screen without taxing the processor too much. AMAL commands are specially optimised Basic program commands which are compiled before running, which makes them super fast. You can incorporate AMAL programs within your regular AMOS code, and this is how you do it.

The first thing to know is that AMAL code can be written in one of two ways:

1 As string statements in a normal AMOS program, or

2 Using the AMAL Editor program. It is possible to write a whole program using just AMAL and letting AMOS run the boring stuff. The trade-off is that AMAL is harder to learn and implement well if you're a beginner to programming.

From AMOS

If you're using AMAL from within AMOS, then you must embed the commands in strings in an AMOS statement like so:

```
Amal 1,"S: M 300,200,100 ; M -300,-200,100 J S"
```

and then run the AMAL program by typing:

```
Amal On 1
```

which runs AMAL program number 1. Each of the AMAL commands consists of one or two letters, like M for Move or PL for Play. If you type the lower case letters for the rest of the word, they will be ignored by AMAL, but will be easier to read.

AMAL contains very clever commands like the Play (or PL) command, which is used for recording a set of mouse moves, for an attack wave for example, and playing them back to a sprite. There are also commands for reading the joystick and mouse positions. These are much faster than the

normal AMOS commands, and are very useful for fast, hard action-type games, or even for something like a graphics program where fast mouse reading and movement is desirable if not essential.

If the AMAL program is a single line then putting:

```
Amal 8,"program"
```

is OK. But if your program uses more lines you have to add each line to a variable, and then call the variable an AMAL program at the end. This is the way it is done in most AMAL programs - in this case I'm using C\$, but of course any string variable can be used:

```
C$="For R=0 To 10 ;"
C$=C$ + "For R0=1 To 320;Let X=X+1;
Next R0;"
C$=C$ + "Let Y=Y+8 ;"
...
```

and so on, with each program line adding the current line to the last, by concatenating it with C\$. At the end of the addition statements, you make the C\$ string equal to the AMAL program by adding the 'Amal n' command, and running the program with Amal On as the last line, like so:

```
Amal 8,C$ : Amal On 8
```

Saying Amal 8,C\$ is like saying Amal 8,"your program", and the Amal On 8 line immediately after runs the program you've just created.

AMAL Commands

The range of commands in AMAL is much smaller than in AMOS itself, but although the instruction set is very restricted it can do a great deal, especially in the creation of games. The command set falls into two categories, the commands and the functions. There are basically just 13 commands; these are:

Move (or M)
Anim (or A)

Let (or L)
Jump (or J)
If (or I)
For To Next (or F T N)
Play (or PL)
Pause (or P)
Autotest (or AU)
Exit (or X)
Wait (or W)
On (or O)
Direct (or D)

There are also 15 so-called functions. These are simple ways of getting information to and from the screen, joystick and mouse. However, there are a couple of the functions which don't fall in to this category; these are the VU meter and the random number function. Everyone needs random numbers, and you can get these by employing the:

```
=Z(n)
```

function, where n equals the number range. For example, using 255 for n will return a value between 0-255. The VU meter function is handy for that interesting VU meter in your latest demo, where the sprites or graphics bob up and down or left to right in time to the music. Check the function of both this and the 'VuMeter' AMOS command in the manual.

Using AMAL Editor

If you intend to print out your program in a magazine or to distribute to friends, then putting your AMAL code into the AMOS listings is a better way to go. But if you are the only person who is going to see the code - if you're going to compile your program, for example - then the AMAL Editor is better. The AMAL Editor takes your AMAL programs and puts them into a memory bank. Then you can call the AMAL programs from a bank, saving space in your AMOS program and saving anyone inspecting your code. I'll be looking at the AMAL Editor in depth next month.



Explore the ultimate in computing excitement...

AMIGA presents
FORMAT



15 - 17 November 1991

 **Commodore**





Discover the Amiga

Amiga Format presents the greatest computer show this year

Just look at what there is!

Christmas hits Ocean, Psygnosis, Mindscape, Electronic Arts, Virgin, Microprose, Gremlin, Mirrorsoft: all the leading software houses will be at the Show, with massive stands. This'll be your chance to see and **play the year's biggest games** – exclusive to the Show.

CDTV City Just what is CDTV? What can you do with it? What software can you buy? Discover exactly what **the future of Amiga computing** holds in the Show's unique CDTV City.

Christmas Shopping Mall All the best Amiga bargains are here! Packed to the very rafters with incredible deals. You won't find **cheaper games** anywhere. Load up with the very best for your Amiga – and at the best possible prices!

Multimedia Theatre Commodore has attracted some of the biggest names in computing to **demonstrate their stuff**. See what the Amiga is *really* capable of!

Games Arcade Set your **eyes on boggle mode**: you won't believe how many incredible games you'll be able to play.

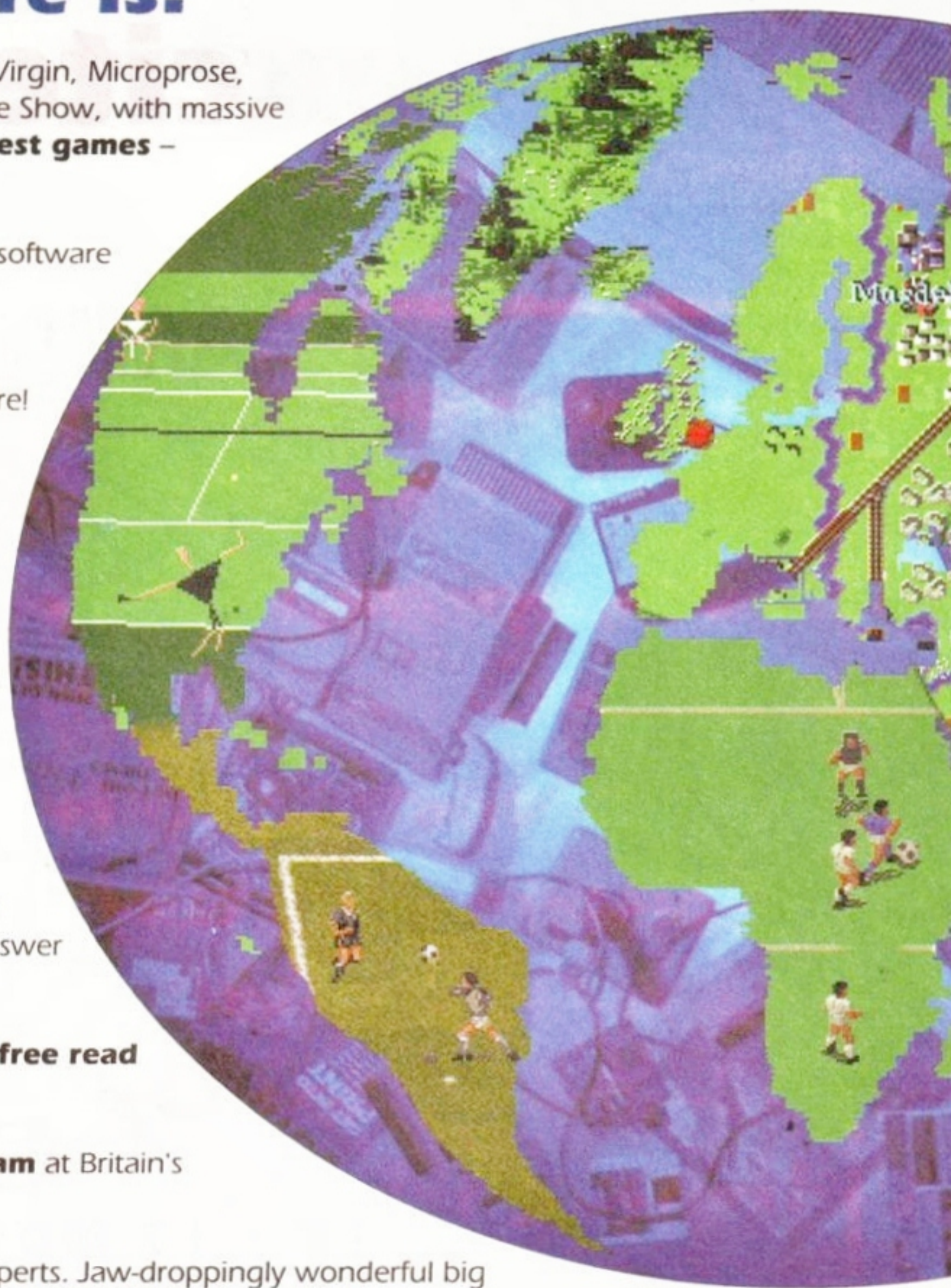
The game makers Imagine hearing direct from the leading games' programmers: just how do they do what they do? Imagine no more: these seminars will tell you **all you need to know**. Plus: **Amiga Format** will be running Question and Answer sessions throughout the Show.

Free Guide **Amiga Format** will be producing a **damn fine free read** of a show guide.

Massive Stands Experience the excitement and **live the dream** at Britain's biggest leisure computer show.

And also... Fistfuls of competitions. Hosts of celebrities and experts. Jaw-droppingly wonderful big screen video. Virtual Reality (virtually certain). Creche. And a **lot of noise**, that's for certain...

You'll think Christmas has come early!

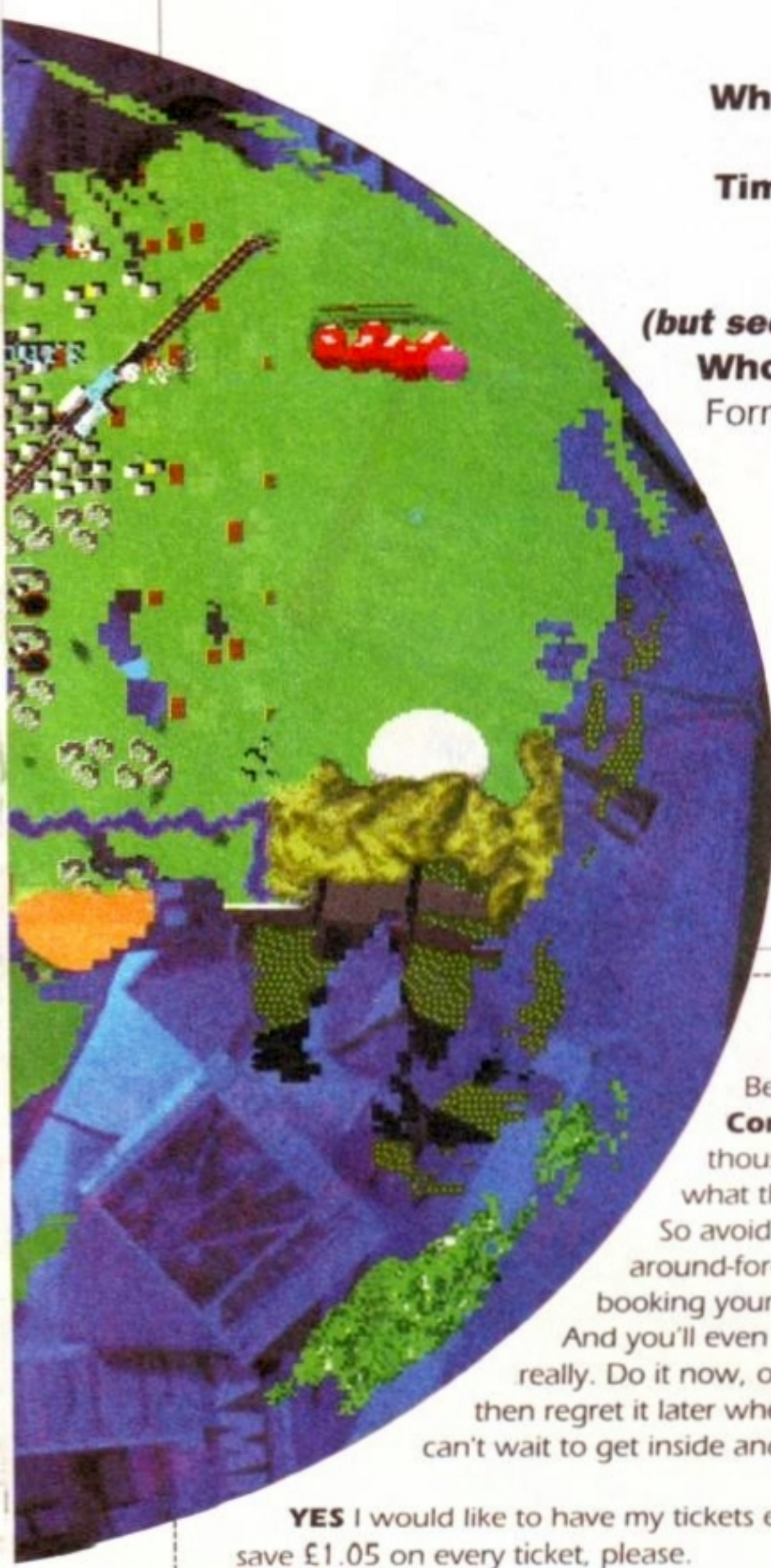


BARGAINS!
Cheaper than you could possibly imagine!



ga at its Best!

r. Earl's Court II, November 15-17 1991: be there!



Faxbox

Where Earl's Court II, heart of London
When November 15-17 1991
Times 9am-5.30pm November 15-16;
 9am-4pm November 17
Cost Adults £6, under 14s £4
 (but see the special **Early Booker Offer**)
Who'll be there? Commodore, Amiga
 Format, Amiga Power, Amiga Shopper,
 all the major games producers, a
 myriad of serious publishers, loads
 of bargain-offerers, lots of
 hardware developers and
 everyone into the world of
 Amiga.
**You want to get the best
 games for your Amiga?
 Get along to Earl's Court
 on November 15-17!**



**Nearest
 tube:
 Earl's Court**

EARLY BOOKER OFFER: SAVE TIME, SAVE MONEY

Be smart. You know this **World of Commodore** will attract tens of thousands of people. And you know what that means: queue City. So avoid all the foot-shuffling, hanging-around-for-ages start to the Show by booking your tickets early. And you'll even **save money**! Bit of a barg, really. Do it now, otherwise you'll only forget and then regret it later when you're really cold and you can't wait to get inside and - (Snip! - Ed)

Number of tickets Adult (at £4.95 each)
 Under 14s (at £2.95 each)
 Total payment
 Method of Payment (please circle) Access Visa Cheque PO
 Credit Card number Expiry date

CREDIT CARD HOTLINE 051 356 5085

Please make all cheques payable to **WORLD OF COMMODORE**

Send this form to
**World of Commodore
 PO BOX 2
 Ellesmere Port
 South Wirral
 L65 3EA**

WARNING: This offer closes on 8.11.91
 If you don't want to cut up this magazine, photocopies are accepted.

AMP9

YES I would like to have my tickets early, avoid all the queues and save £1.05 on every ticket, please.
Name
Address

Postcode



Micromail

Unit 9, Smug Oak Business Centre
Lye Lane, Bricket Wood, St Albans, AL2 3UG
Tel: (0923) 894111 - 8 Lines
Fax: (0923) 894143

AMIGA 500 "CLASSICS" GAMES PACK

Includes: 1Mb memory "The Simpsons", "Captain Planet and the Planeteers" and "Lemmings" games, plus Deluxe Paint III, plus Quickshot Joy Stick.
£349 inc VAT

BASIC AMIGA 500

TO GET YOU STARTED INCLUDES:

Mouse, PSU, 512K RAM, 1 MB Disk Drive, 4096 Colours, 20 PD Disk Power Pack includes: Word Processor, Spread Sheet, Data Base, Virus Killer, Demo Games, TV Modulator, Three Manuals, Built in Speech Synthesis, Quickshot Joystick, Mouse Mat.

ALL FOR JUST
512K Amiga £299 inc VAT
1MB Amiga £329 inc VAT

AMIGA 500 GRAND PACK FULL SCREEN GEMS PLUS:

10 Hit Games, 20 PD Power Pack, Word Processor, Spread Sheet, Date Base, Accounts, Virus Killer, Games, Demos, 10 Blank Disks, 80 Capacity Data File Disk Box, Dust Cover, Mouse Mat, Quickshot Joystick.

512K Amiga £369 inc VAT
1 MB Amiga £389 inc VAT

AMIGA 500 SCREEN GEMS

Includes full Amiga Pack plus

- Shadow of the Beast II
- Days of Thunder
- Back to the Future
- Night Breed
- Deluxe Paint II
- Virus Killer Disk

512k Amiga £329 inc VAT
1 MB Amiga £349 inc VAT

CD TV £599 inc VAT

Commodore 1084S Monitor with leads
Phillips 8833 Mark II with leads
Zydek External Disk Drive
Cumana External Disk Drive
A590 Hard Drive
A590 Hard Drive + 2 MB RAM
KCS 500 Power Board inc 512K exp. MS DOS, Shell, 640K
CBM A501 512 RAM Expansion
512K RAM Expansion for A590
2 Mb RAM Expansion
10 Blank Disks
50 Blank Disks

£219 inc VAT
£229 inc VAT
£55 inc VAT
£69 inc VAT
£265 inc VAT
£325 inc VAT
£215 inc VAT
£39 inc VAT
£29 inc VAT
£69.00 inc VAT
£5.99 inc VAT
£15.99 inc VAT

ORDERING

TELESALES NO: (0923) 894111

Government and School Orders Welcome.

Next day delivery for credit card orders placed before 4.00pm subject

to availability. Alternatively send cheque, postal order to

Micromail Ltd, Unit 9, Smug Oak Centre, Lye Lane, Bricketwood, St.

Albans, AL2 3UG. Please allow 5 working days for cheque clearance.

Subject to availability, despatch is normally within 24 hours of receipt of

cleared payment.

DELIVERY CHARGES: UK Mainland (not Highlands)

Small consumables &

software items

Other items except lasers

Laser printers

Offshore and Highlands

In addition we offer the following express services:

Saturday deliveries

7am - 9am next day

Am next day

Despatched by post, please check

charges when ordering

Next day courier service, £10 per box

Next day courier service, £17.50

Normal rate plus £20 + VAT per box

Normal rate plus £10 + VAT surcharge per box

Normal rate plus £10 + VAT surcharge per box

Normal rate plus £5 + VAT surcharge per box

Prices are subject to change without notice E. & O.E.

AMIGA 500 FIRST STEPS

EDUCATION PLUS PACK

A501 512K RAM Expansion, Lets Spell At Home, Prowrite, WP, Infofile Spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, Logo, Talking Turtle, BBC Emulator, 5 BBC Programmes, 10 Blank Disks, Do's and Don'ts Poster, Resource, In Pack Video, NAPE Booklet, Python Digital Joystick, Plus 20 PD Educational Games

£469 inc VAT

AMIGA 1500

Twin Floppy 1 MB RAM, Mouse, 1084S Monitor with the Work Platinum Database, WP, Spreadsheet, Deluxe Paint III, Simcity, Populous, Their Finest Hour, Battlechess

£859 inc VAT
£649 inc VAT

with TV Modulator, no Monitor

PRINTERS

HP DeskJet 500

HP PaintJet

HP LaserJet IIIP

HP LaserJet III

Canon BJ 10E

Citizen Swift 9 Pin Colour with lead

Citizen Swift 24 Pin Colour with lead

Star LC200 Colour with leads

Star LC24 200 Colour with lead

309 + VAT
649 + VAT
679 + VAT
1059 + VAT
229 + VAT
162 + VAT
234 + VAT
166 + VAT
234 + VAT

AMIGA 4 - 9 yrs BEGINNERS PACK

Amiga 500, Funschool 2 (Specify under 6, 6 - 8 yrs or 8 +) and Funschool 3 (Specify under 5, 5 - 7 yrs or 7 +), Best Educational Games on 10 disks, Quickshot Joystick

512K Amiga £359 inc VAT
1 MB Amiga £379 inc VAT



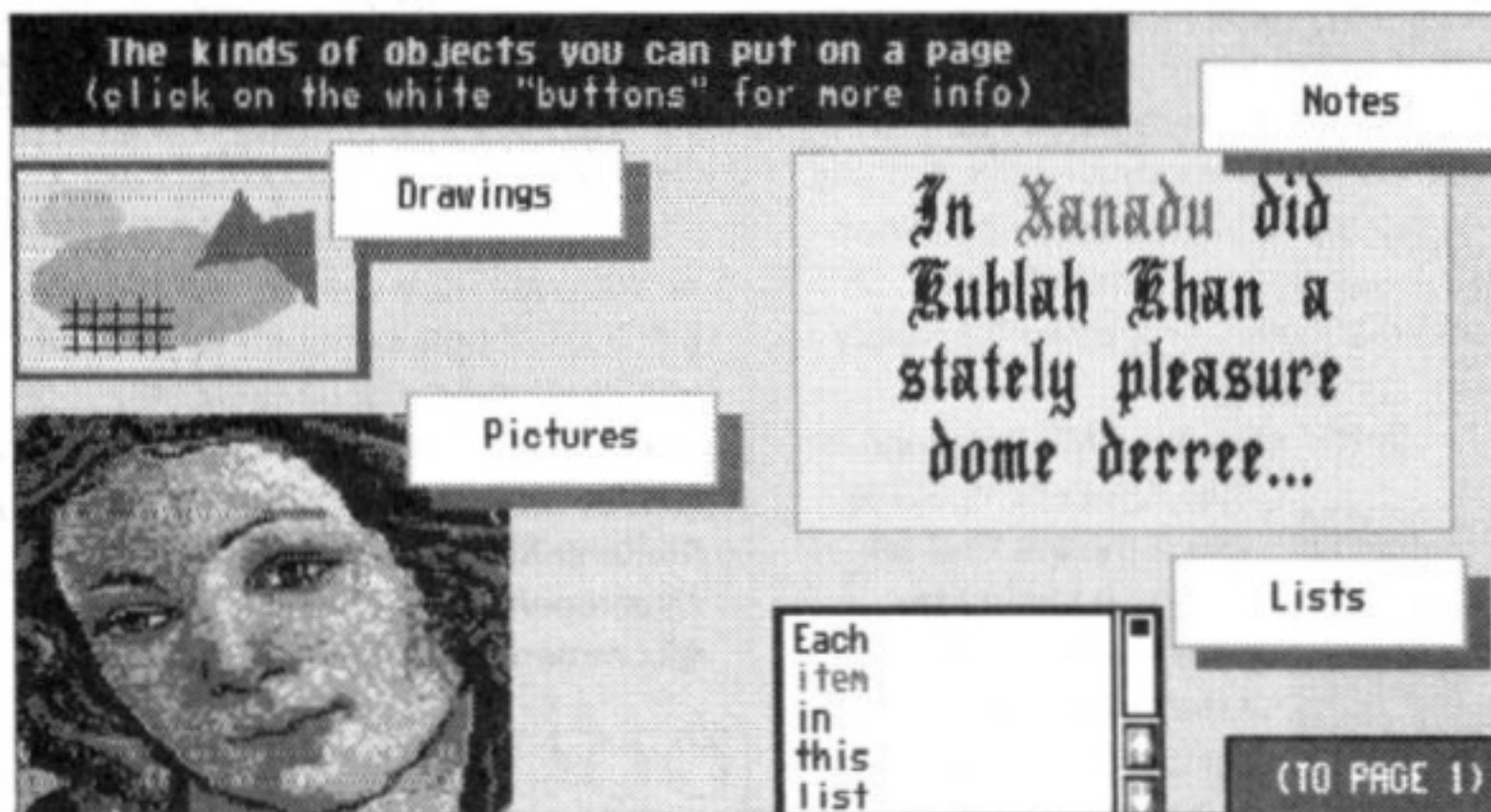
WHERE TO FIND US

Callers Welcome at our Showroom

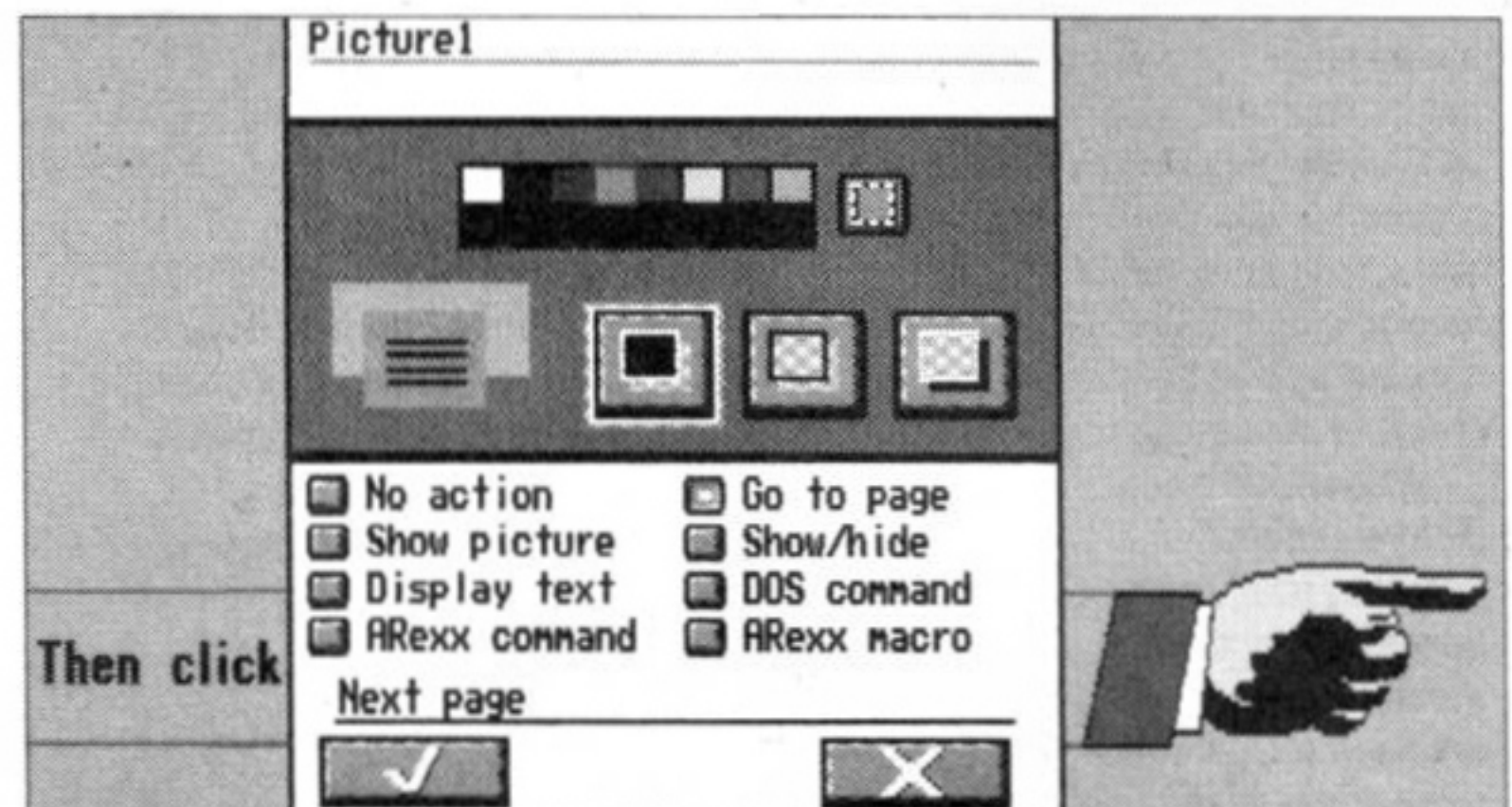
open 9-5.30 Monday - Saturday

open 10-4 Sunday

AMPLE FREE PARKING



Hyperbook supports four types of object, all of which can be assigned to carry out particular tasks when clicked upon.



And button can be set to perform one of eight different tasks when the user clicks on it – the tasks are defined by a requester, as shown above.

Multimedia marvel

Gold Disk's latest release, Hyperbook, means that anyone can get in on the multimedia malarky. Jason Holborn takes the program for a test drive

Unless you've been on holiday in darkest Siberia for the last two years or so, you can't have helped but notice that 'multimedia' has become the latest buzzword on the lips of every computer user worth

their salt. The fact is, multimedia is big business. In little more than two years, the industry has gone multimedia mad, with such industry hard-hitters as Apple and IBM jumping on the bandwagon in an attempt to corner the market.

"As an Amiga fan, I'm always keen to look at exciting new products – and that's exactly what Hyperbook is."

Jason Holborn

Commodore too would like a slice of the action. The Amiga is a natural for multimedia work, but up until recently there just wasn't the software available to exploit the Amiga's obvious talents. A few months ago, Commodore announced the launch of *AmigaVision*, a powerful multimedia authoring environment which is bundled free of charge with all Amiga 3000s sold.

True multimedia may not be of much use to most of us, but the theory behind it most certainly is – at least, that's what Gold Disk would have us believe if its latest release is anything to go by. Badged as 'a free-form personal information manager for the rest of us', *Hyperbook* borrows more than a few tricks from more powerful programs.

DAINTY DATABASE

Like most multimedia applications, *Hyperbook* is really nothing more than a glorified database. But, unlike a database, you're given far more control over how the information is presented to the user. Programs like *Superbase* allow you to design 'forms', but *Hyperbook* takes this concept much further, allowing the forms themselves to become an integral part of the application.

Hyperbook uses the now famous system of linked cards that was pioneered by Apple with its *HyperCard* system. Not wanting to infringe anyone's copyright, Gold Disk calls its decks 'books', with each card within the deck being referred to as a 'page'. In some ways, this seems a better way of

describing the principles behind the *HyperCard* approach; if you think of a *HyperCard* deck as a series of linked pages within a book, then you're already halfway there.

Each page within your book can contain any combination of four basic elements – buttons, notes, drawings and lists. Each can be assigned one of a choice of eight actions that will be performed when the particular element is clicked upon with the left mouse button. These actions range from displaying an IFF image, displaying a text file or moving between pages, to running both DOS commands and ARexx scripts.

The four basic elements on offer are highly configurable. In the case of a note (which is basically a gadget containing text), you have control over the font used, the colour, the line spacing and tracking of the font, the text style and so forth. The gadgets can be altered considerably too, allowing you to customise your applications with ease.

To make your *Hyperbook* application at all usable, you must remember to link each page, making it accessible once the application is complete. The simplest way to do this is to create movement gadgets on each page of your book – but even then it's all too easy to lose track of the odd page or two once your application starts to grow.

PICTURE THIS!

Obviously no multimedia program would be complete unless it gave you some form of control over different

BEGINNERS

Multimedia is a very powerful

system for handling information. A multimedia application can draw upon information stored in just about every conceivable format, ranging from static images and text generated by the Amiga itself to full motion video footage stored on a video disk player and high-quality audio stored on a standard compact disc.

What makes multimedia so special is the fact that it is interactive – that is, you (the user) are given full control over what information is displayed, and when. By using devices such as touch-sensitive screens, the user need never touch a keyboard or mouse – instead, the whole application can be controlled by literally pointing with your finger at on-screen 'hot spots'.

BEGINNERS START HERE

BEGINNERS

In practice, multimedia is

nothing new. If you've ever visited the local arcade, then the chances are that you've already seen multimedia in action. In particular, Atari's *Mad Dog McKree* pushes multimedia hardware to its limits. The game – which is set in the wild west – sees players pitted against video footage of real life actors dressed in cowboy attire. As the on-screen cowboy goes for his gun, you have to draw your (tacky plastic) gun from its holster before he can pump you full of lead.

Multimedia also has more serious applications though. You'll find the Amiga being used for interactive business presentations, education, training, simulations, point of sales and much more besides.

continued from page 101

media types. *Hyperbook* is perhaps not as well endowed as programs like *AmigaVision* in this respect – it cannot handle animation, sound or speech at all, so don't expect to be able to create an all-singing, all-dancing application without having to resort to desperate measures.

Thankfully though, pictures can be imported into your pages, giving them an attractive look that will keep your prospective user interested. When you first load a picture, *Hyperbook* allows you to clip out (crop) a section of the image. If the dimensions of the image are greater than (or different to) the current page settings, then you can scale the image to your heart's content.

Unfortunately, the current release of *Hyperbook* only supports two screen modes for its pages, which really is a drag. Those modes are high and medium resolution, with a maximum of 16 colours in either. Images in other formats can be imported, in which case *Hyperbook* attempts to remap the palette of the image to the best of its abilities. Unfortunately, this isn't saying much – you're usually left to do most of the actual palette tweaking yourself.

You can, of course, display HAM images and so on, but you can do nothing with them – in fact, it's definitely a case of look but don't

touch. Gold Disk really should remedy this – it's almost unbelievable to think that the company should let such an obvious problem slip through.

I'm also very surprised to note that *Hyperbook* doesn't support animation or sound. It is possible to get around this using *Hyperbook's*

By simply defining macros (scripts), you can set up your multimedia application to carry out a vast number of operations both internally and externally. The language allows your application to modify itself automatically using powerful Basic-like commands.

Better still, the HML language is fully ARexx-compatible, which means that (in theory) it should be possible to control external hardware devices from within *Hyperbook*. You'll obviously need an ARexx-compatible driver for the device, but now that ARexx has been adopted as a standard, this shouldn't prove to be too much of a problem. ARexx will also allow your *Hyperbook*

applications to talk to other programs running on the Amiga, sharing data and even controlling the operations of those programs.

Unfortunately, there is a problem – HML won't work unless you've got ARexx installed on your system. Even the internal operations that control *Hyperbook* itself refuse to work at all. The problem is, though, that virtually no-one actually has ARexx yet, due mainly to the fact that Commodore still hasn't released Workbench 2.0 for anyone but those lucky A3000 owners. You can buy ARexx separately, but there seems little point if you'll be able to get it free of charge with OS 2.0.

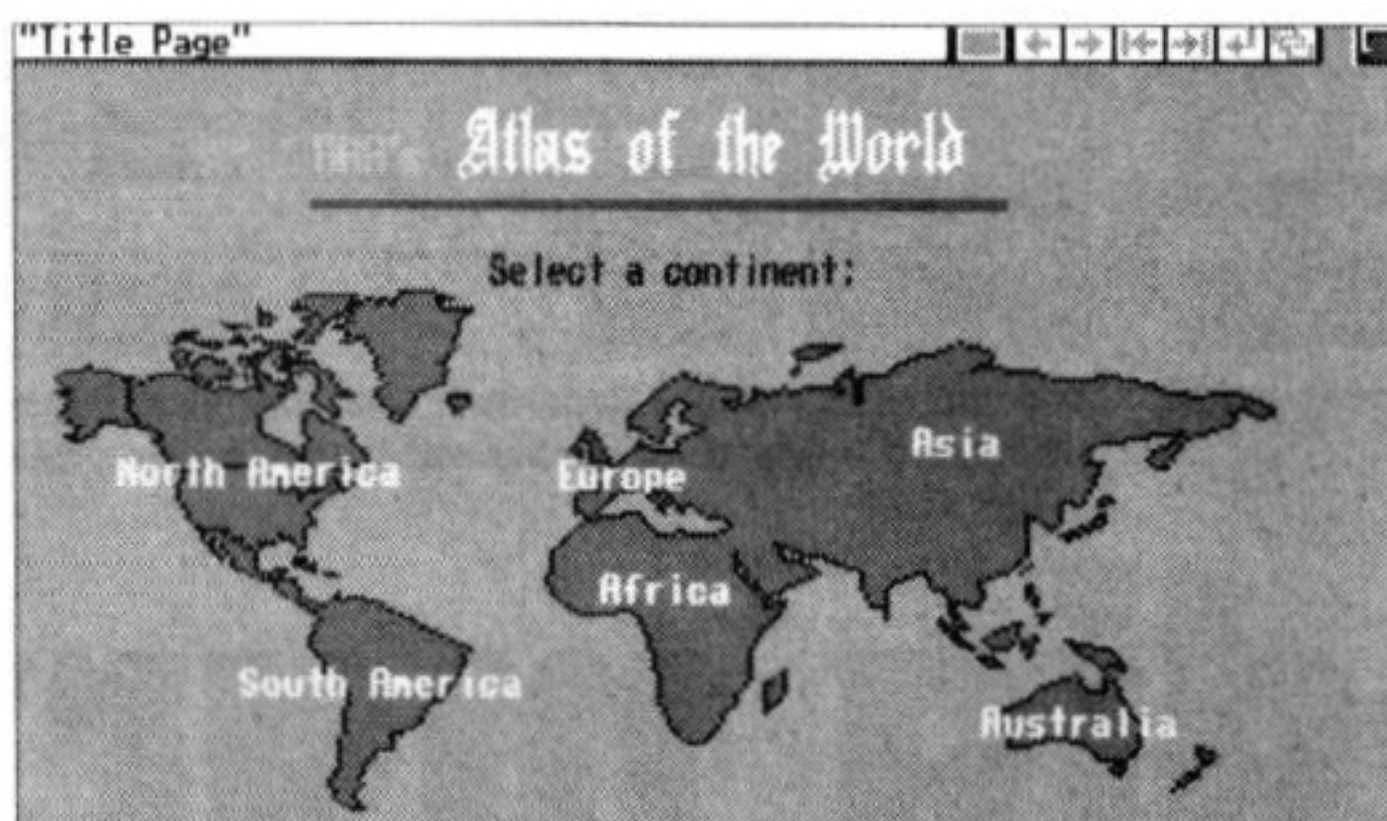
CONCLUSION

Hyperbook most certainly doesn't pose any threat to dedicated multimedia authoring systems like Commodore's own *AmigaVision*, but the potential is definitely there. It's one of the most intuitive multimedia systems I've ever had the pleasure to use. After little more than ten minutes reading the manual, I was able to use the vast majority of *Hyperbook's* features – something that I most certainly can't say about *AmigaVision* or *CanDo*!

I'd very much like to see Gold Disk take *Hyperbook* a stage further, bringing it into the realms of truly professional multimedia authoring. Direct support for the more common video disk controllers would be a start, along with more control over the 'books' themselves (a more powerful scripting language is definitely needed, along with more tools to manipulate data). Let's just hope that someone at Gold Disk is reading this – who knows, perhaps we'll see *Hyperbook Professional* in the reasonably near future!

Gripes aside, I must admit that I like *Hyperbook*. In fact, I like it a lot.

I've used just about every Amiga multimedia authoring system under the sun, but never have I had so much fun as I did with *Hyperbook*. It's no threat to systems like *AmigaVision* and *CanDo*, but it's still got a great deal going for it. Ease of use is undoubtedly its greatest asset, but it's also powerful enough for the vast majority of personal multimedia applications. All in all, *Hyperbook* comes highly recommended. **AS**



Whether you're creating information systems for education, business or just for fun, *Hyperbook* is well worth checking out.

'DOS' command, which allows you to run an external program from within *Hyperbook*. Simply by installing one of the many PD animation or sound players (Sparta's *ShowAnim*, for example) in the C: directory of your system, you can extend *Hyperbook's* media handling capabilities substantially.

COMMAND PERFORMANCE

The true power of *Hyperbook* doesn't become apparent until you start to explore its powerful macro language, HML (*Hyperbook Macro Language*).

JARGON BUSTING

ARexx – Developed by William S Hawes, ARexx is the Amiga port of the powerful Rexx intertask communications standard found on many mainframe computers. It allows applications to 'talk' to each other within a multitasking environment, allowing them to share data and even control each others' operations. With the release of Workbench 2.0, ARexx has now become part of the Amiga's operating system.

Hypermedia – Often confused with multimedia (qv), hypermedia is actually a system of cross-referencing information using sophisticated links. Multimedia is built upon the theory of hypermedia, making the two virtually inseparable.

Hypertext – This is the most powerful tool in the hypermedia toolbox. It allows individual words within a passage of text to be linked to other items of relevant information. By simply clicking on one of many 'keywords', information relevant to that word is automatically displayed. In this way, the user can travel through vast amounts of information, displaying only the data required.

Multimedia – Multimedia applications are basically glorified databases, which can contain information in just about every format you can think of. However, what makes multimedia so special is the fact that it is interactive – that is, the user has complete control over what information is displayed and when.

SHOPPING LIST

Hyperbook 1.0.....£99

by Gold Disk Inc

PO Box 789, Streetsville,
Mississauga, Ontario,
Canada L5M 2C2.

☎ 010 1 416 602 4000.

Distributed in the UK by:

Silica Distribution Ltd.

1-4 The Mews, Hatherly Road,
Sidcup, Kent DA14 4DX.

☎ 081-309 1111.

HB Marketing Ltd.

Unit 3, Poyle 14, Newlands Drive,
Colnbrook, Slough SL3 0DX.

☎ 0753 686000.

Precision Software Ltd.

6 Park Terrace, Worcester Park,
Surrey KT4 7JZ.

☎ 081-330 7166.

CHECKOUT HYPERBOOK

Ease of Use ●●●●○

Quick and easy – that's the best way of describing *Hyperbook*. The user interface is well designed and logical, allowing you to cruise through its requesters at speed.

Features ●●●○○

It's not quite up to the same standards as programs like *CanDo* and *AmigaVision*, but *Hyperbook* achieves what it sets out to do. Picture handling is rather limited, but everything else is well implemented.

Documentation ●●●○○

Complete with three tutorials and comprehensive appendices, *Hyperbook's* manual is well written and informative. Also included is an extra 'Applications Guide' which lists 35 application suggestions for this powerful program.

Price Value ●●●●○

At £99, *Hyperbook* is just a few pence under the magic ton. This is rather a lot for a program that can't directly handle external media devices – although I must say that it performs well in other areas.

Overall rating ●●●●○

Hyperbook is a good, reliable personal multimedia authoring system at a fairly reasonable price. If you're looking for an introduction to the whole area of multimedia, this could be the one for you.



AMIGA REPAIRS

JUST £44.95 inc.



- ★ Commodore registered
- ★ Over 10 years experience with Commodore computers
- ★ 20 qualified technician engineers at your disposal
- ★ We will undertake to repair your Amiga 500 computer for just £44.95 including parts, labour, VAT and post & packing
- ★ Most computers should be repaired within 24 hours of booking in.
- ★ Prices include full service check, overhaul, soak-test and replacement of power supply unit if necessary
- ★ Repairs to keyboard and disk drive also included (£25 extra if these units are unrepairable and require complete replacements)
- ★ All repairs covered by a 90 day warranty

Upgrade your Amiga from 512K to 1Mb of memory for just £25.00

SPECIAL EXCLUSIVE OFFER:

If you submit your computer to ourselves for repair, enclosing this advert along with just an additional £25, we will supply and fit a 512K memory expansion at no extra cost.

How to take advantage of this exceptional offer: simply send or hand deliver your machine to the workshop address detailed right, enclosing payment and this advert and we will do the rest. (If possible please include a daytime telephone number and fault description).

** If you require 24 hour courier to your door, please add £5 else your computer will be sent back by contract parcel post.*

WTS ELECTRONICS LTD

STUDIO MASTER HOUSE

CHAUL END LANE

LUTON, BEDS, LU4 8EZ

Telephone (0582) 491949 - (4 lines)

WTS reserve the right to refuse machines that in our opinion are beyond reasonable repair

AMIGA 500 MAMMOTH 1/2 MEG UPGRADE

LATEST DESIGN INCORPORATES 'CHIPMEN' OPTION AT NO EXTRA COST!

- Increases computer memory from normal 1/2 megabyte to 1 megabyte
- Includes disable switch/incorporates high quality silver coated pin connector
- 16 bit technology
- Fit in minutes
- Direct replacement of Commodore A501 expansion
- Includes "CHIPMEM OPTION" - Phone for details
- 12 month warranty
- In stock now!

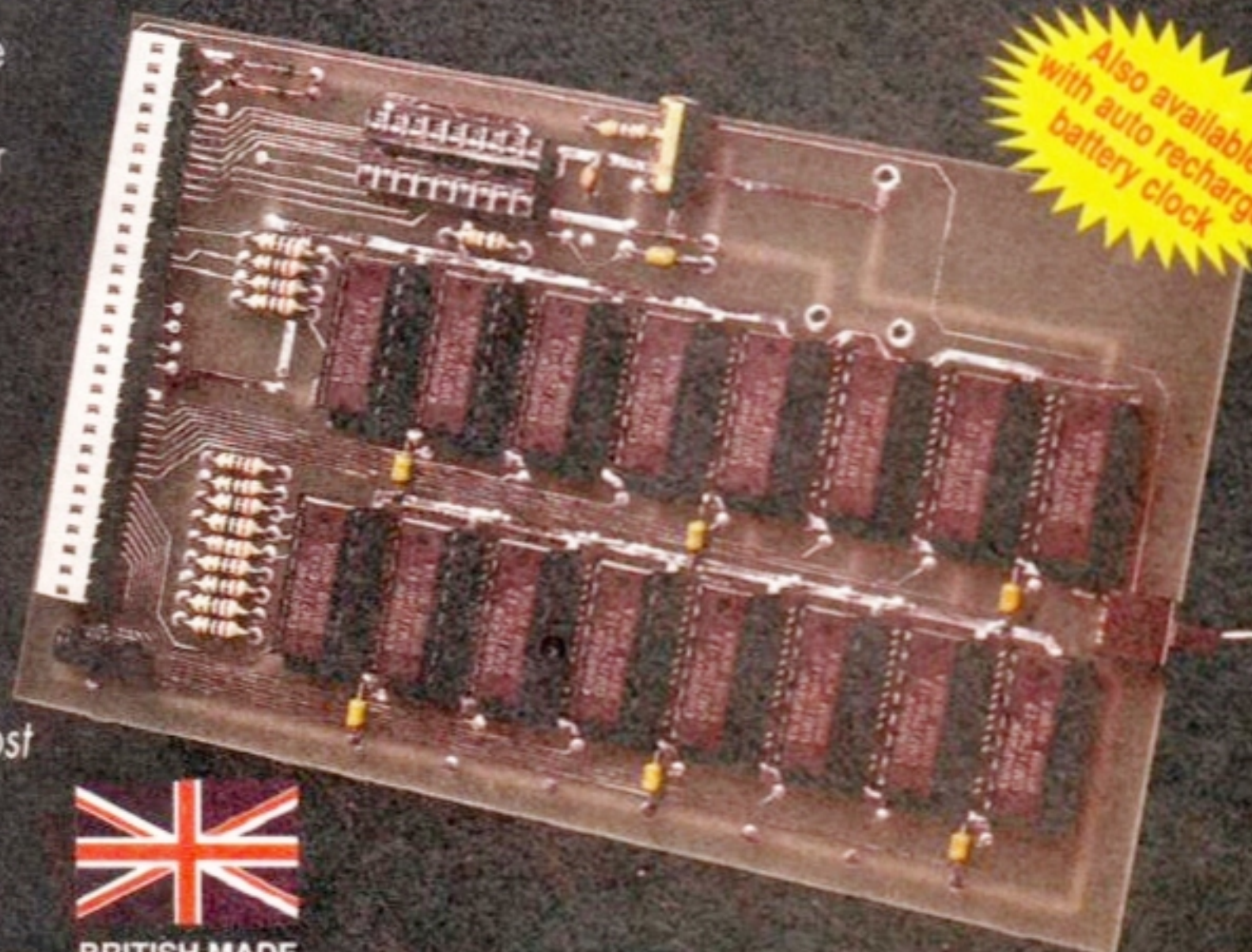
£29.00

Price includes VAT and post and packing

Tel: 0582 491949



BRITISH MADE



Also available
with auto recharge
battery clock

Send order with payment to:

WTS ELECTRONICS LTD, Chaul End Lane, Luton, Beds LU4 8EZ

Sound sense



"The best way to edit a synth's sounds is by using a program on a computer. The multi-tasking Amiga is the ideal tool for this - but is the software up to the task?"

Jon Bates



One of the drawbacks of modern synths and tone modules is that they are extremely difficult to

program using the on-board controls. Since the advent of the commercial digital synthesizer about 8 years ago, this difficulty has been reflected in the ever-growing number of companies marketing 'off-the-peg' sounds that you put into your particular synth, usually from a cartridge or smart card. These do not come cheap - normally somewhere between £25 and £100 a time. You are also faced with either throwing away some of the sounds you have or forking out for more storage media - a RAM cartridge or card. Although there are synths that have floppy disk drives for storing sounds, these tend to be in the upper price bracket.

Good voicing software will not only create sounds but will also store them to disk in libraries. You can often stack them up in banks to be loaded into the instrument and certainly re-configure to a new library of sounds from those you already have. I find that I tend to have three main general sound banks for each synth that reflect different broad music styles that I might work in. If I need to bring in specialist sounds, however, it is quite easy to call them in from the disk library and re-organise the whole bank of sounds.

The programs under consideration this month come from the American software house Dr T's and the UK's own Gajits, and between them they cover a wide range of synths and tone models,

Jon Bates compares three voicing programs for the Amiga, and discovers what is necessary to create weird and wacky sounds

both past and present. Dr T's has recently launched a program for the Amiga which will adapt itself to virtually any synth or effects unit; at present it can cope with over 90. *X-Or* is the first universal editor for the Amiga, and has some extremely powerful features. It will be compared alongside other software packages, but you should remember that *X-Or* must first be configured to your system and equipment. This sort of program can be thought of as an application into which you load specific parameters for your synth. The good thing is that you can have as many synths as you want co-existing. All you do is call up the appropriate page to edit them.

For the main test I have chosen to use the Roland MT-32, since is both a popular home tone module and a pain in the neck. It is difficult and complex to program, and any sound you create is lost the minute you turn it off - an ideal candidate for voicing software. The other programs on review are Gajits' *CMpanion* and the MT-32 Editor from Dr T's *Caged Artist* series of voicing software.

STARTING OFF

Because of its multiple applications, *X-Or* requires that you initially set up the MIDI channels and instrument numbers from a separate window. The MT-32 is odd in that it in requires you to set a systems exclusive unit number of 17, which may well bamboozle the beginner. However, once correctly set up it behaves perfectly. There is also a help page which is very useful if, like me, you fail at first to get the MT-32 talking to the Amiga. In *Caged Artist* and *CMpanion* this little problem is taken care of automatically.

CREATING SOUNDS

Creating sounds is the main *raison d'être* for voicing software, and is nearly always the first port of call for a potential user. The MT-32 generates sounds by using a combination of 'partials', which are very short samples of real instrument sounds or waveforms. These can be

linked together in a variety of combinations up to a maximum of four partials. Each of these partials can be shaped, the term is a sound 'envelope', which alters the amplitude, tone and pitch on a time base from when the note is first struck. For example, the shape of

the amplitude envelope will determine if the sound comes in fast or slow, fades away or hangs on when you take your hand off the keys and so on. The time-honoured method of doing this is to use a graphic display: an active screen area where you click on a point of the graph and drag it about to alter the shape and hence the sound. Obviously there are many other parameters that need to be altered to create sounds: the pattern in which the partials are interconnected, the actual sound of the partials, their individual tuning

BEGINNERS

I thought that MIDI could only

be used to create pieces of music using sequencing software. How do these voicing programs work?

They use a part of the MIDI language that is especially reserved for talking directly to the part of the synthesizer or tone module that creates the sounds. This is called 'Systems Exclusive'.

But why should I want voicing software? My synth is complicated enough without all this additional hassle.

Exactly. Most synthesizers are so complicated that even the experts find them difficult to master. However, the sort of voicing software that is around now has help in the form of a 'randomise' function. This creates sounds for you, and by experimenting with the very visual displays on-screen you can easily make your own custom sounds.

But my synth is already full of sounds, so the only way I can store new ones is by purchasing a special card that fits in a slot. I'm told that they cost nearly £100.

Good voicing software will save you buying a card. Not only will the software create sounds but it will also save them on disk in the form of a library. You should be able to store all the sounds in

BEGINNERS START HERE

BEGINNERS

your instrument on a disk and

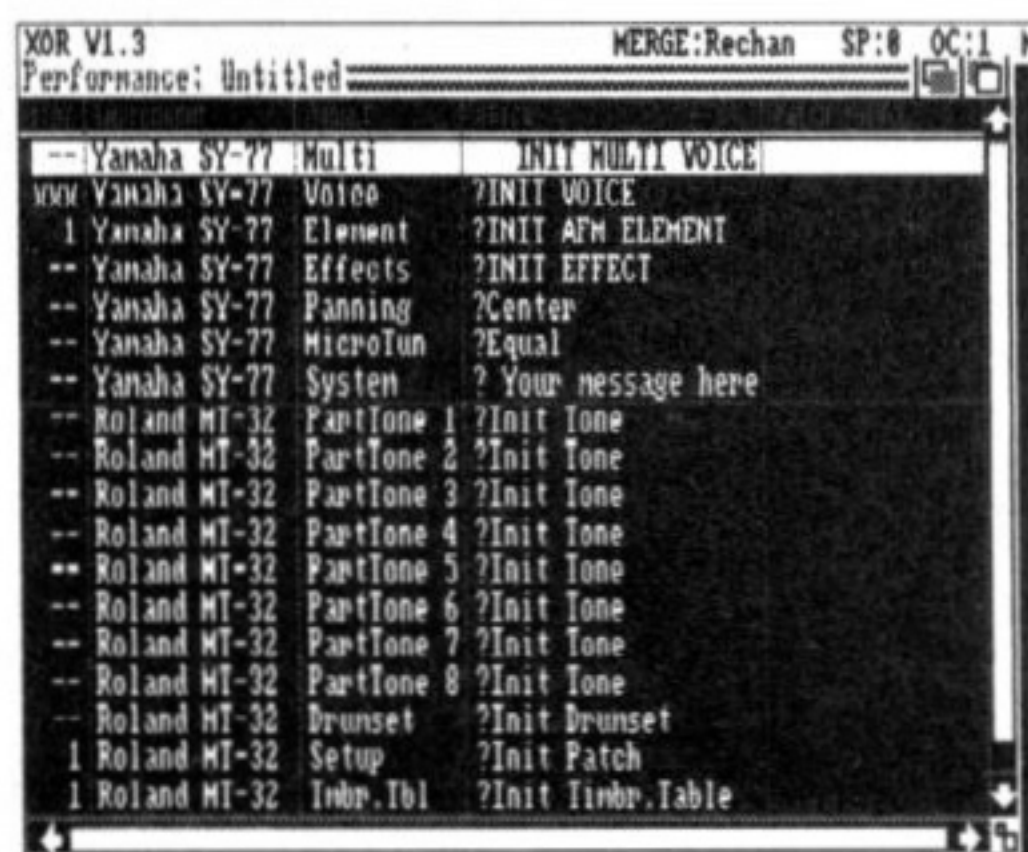
add new ones whenever you like. In this way you can fill your synth with the sounds that really take your fancy or that fit the music you are creating.

Great. My friend has a Korg M1 synth so now I guess I can pinch all his sounds and load them into my Roland D-110 module.

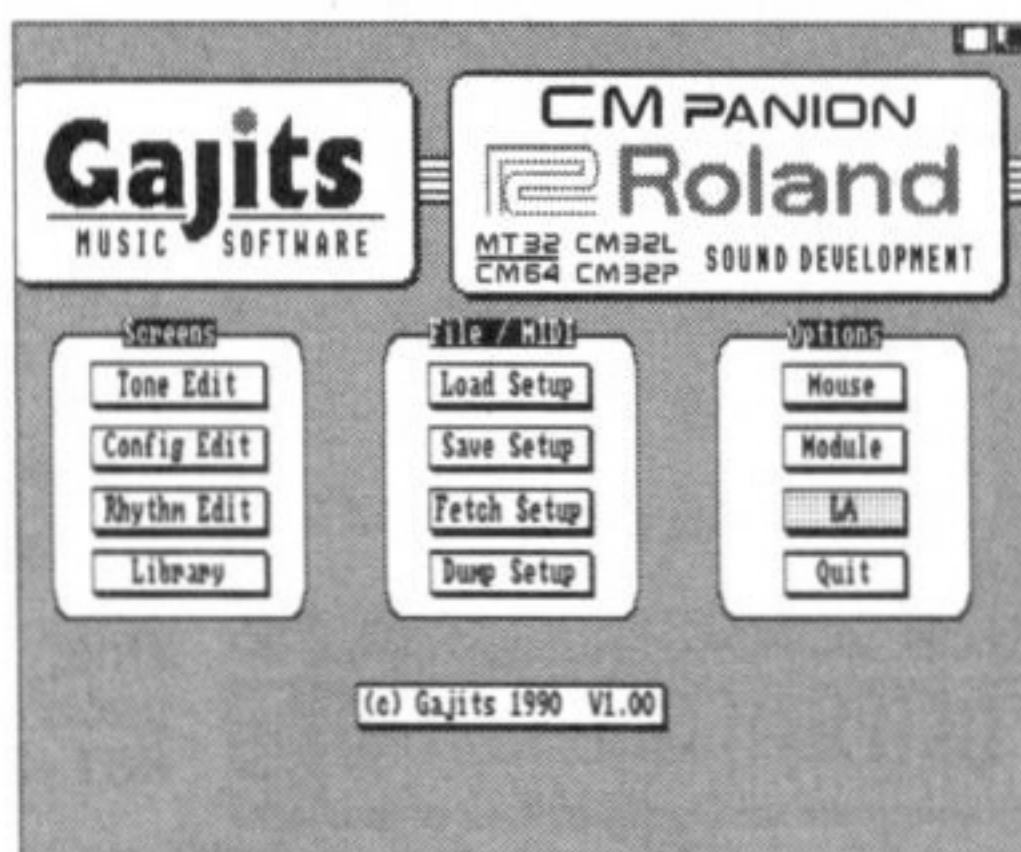
Sorry, but you can't do that. The way that one instrument creates a sound is very different to another and the data is simply not compatible at all. In fact there are very few instances where one instrument's sounds can be loaded into another, even if they are the same make. If you like, the fact that the data is termed 'exclusive' means that it is special not only to that make but also the actual model of instrument.

Will I need a separate voice programmer for each instrument?

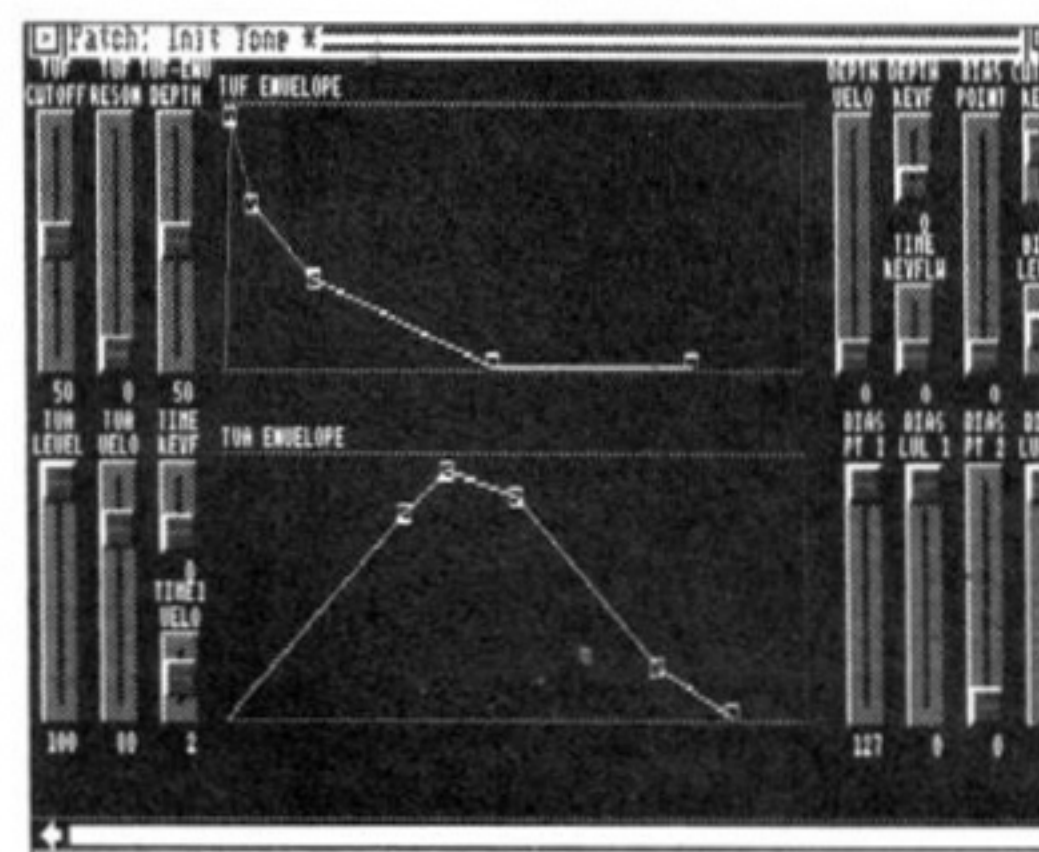
Well, you might. On the other hand there are programs that cater for three or four closely related instruments and as you will see in the main text there is one program, *X-Or*, that has the ability to work with virtually any synth. If you plan on having a large set of instruments this might be the best way forward.



The multiple performance screen of *X-Or* sends out voice information over the MIDI network to every instrument in your system.



This is the opening screen of *CMpanion*, with all its options on display. From here any function can be accessed.



The voice editing page in *X-Or*. This time it's the MT-32 that is having the once-over from its very graphic interface.

and their response to the keyboard in both pitch and velocity.

X-Or displays three graphs for pitch, amplitude and filter using one big screen display that you scroll up and down, and these individual graphs can be dragged about to change the sound. As you click on a different partial so the graphs change to show how each partial is set. Most other parameters are set numerically using graphic faders, but those that are not produce an overlay window when clicked which displays all the options right in front of you. This is a very quick and informative way of getting the sound you want. All changes in the data are sent immediately via MIDI to the tone module.

In *CMpanion*, sounds are edited using a separate tone edit page. In order to squeeze all the sound data on to one screen, the program uses one graph which can be assigned by the user to display either the pitch, volume or filter and then to display that data for each partial. Again to save screen space, all other alterations are numeric as opposed to *X-Or*'s sliders. However, *CMpanion*'s method is quite a handy way of comparing the graphs of various aspects of each partial as you can flip from one to another and the screen refresh is very fast indeed. The program will also link any of the partials together so that any changes made to one section are paralleled in another. Like *X-Or*, there is a graphic representation of the way the various partials are linked; to change this you alter the configuration number. All numeric values can be scrolled by double clicking and holding the button down whilst moving the cursor up and down, or you can simply enter the value from the keyboard.

There is no menu environment in *Caged Artist*, so it's down to using the function keys to get around the program in combination with the cursor and up and down arrows. An upright bar on the right hand side of

the screen will change values that are highlighted, or you can simply enter them numerically.

Caged Artist has a good screen display with two central graphs, one for filtering and one for amplitude. You can switch between partials thanks to the highlight box in the left-hand corner and drag the graphs around with the cursor. The partial is also highlighted in the structure display, so that you know what point in the construction of the sound you are editing. To copy any aspect of one partial to another, a copy screen appears which offers you a clear set of choices. The graph windows are also used to display the keyboard scaling: that is, the degree to which the pitch affects how any particular partial sounds – for some sounds you might want to emphasise different key areas. What is a very complex procedure numerically, involving setting filter key scaling and amplitude break points, becomes very simple when performed graphically from this program. The pitch envelope uses another page and again is self-explanatory with a

central graph. Altogether, *Caged Artist* makes editing a sound an enjoyable experience.

DRUM EDITING

The MT-32 has a full drum kit which is permanently set to MIDI channel 10. Not many casual users know that you can 're-map' the kit to different notes, alter their stereo position individually and decide which drums have reverb effect. All this should be easy to do with the correct software, and each 'kit' should be capable of being saved to disk.

CMpanion has a very clear and easy-to-use display. A keyboard spans the screen, and can be played with the cursor even when the MIDI thru switch is on. Any key can be assigned to any drum or sound from the internal memory bank and the options are clearly marked for individual volume, panning and reverb off or on. All kits can be saved as a separate entity.

A key list on the left of the *Caged Artist* screen is flipped through via a small box at the top right. By highlighting a note you can place any

sound and drum on it: the pan and volume are numerically set in the corresponding columns. A small screen keyboard also plays the drums, as will your external keyboard. Quick, simple and no problem to use at all.

X-Or has a rather poor display here, with very little information to go on. A fader controls the tone/drum number for the key you have chosen from another fader; the pan fader is the only other major control. It would probably have been better to use the pop-up windows with a drum listing, but perhaps that involved too much programming. The method employed is certainly lacking in finesse, and you can't switch the reverb off for any of the drums.

MULTIPLE SETUPS

These are sometimes called Configurations or Performance Memories, depending on the synth and software, but the general idea is that you can create and save a global setup, perhaps to be used with one particular piece of music. The MT-32 can play up to eight parts simultaneously, along with an additional drum part. These need to be easy to create, check and save, with options to pan any part and set the volume both for individual parts and overall. The reverb controls and any other effects that are present in the instrument should be on display here, so that they are stored as part of the global data.

The Performance window in *X-Or* has separate sections for each tone in the setup. To create a setup is quite easy. To call in separate voices simply load up a bank of sounds, highlight the part number and click on the voice in the bank window. Having set them all up you go to a Setup Edit page which uses copious numbers of faders to trim the balance, tuning, pan and reverb to your requirements. Saving this total performance window, perhaps using the name of the song in question,

continued on page 107

FEATURES COMPARISON

(Editing the Roland MT-32 Sound Module)

All scores rate out of 5

	CMpanion	X-Or	Caged Artist
Drum Edit	3	1	3
Tone Edit	2	2	3
Performance Edit	3	3	3
MousePlay	1	3	3
Randomise	2	1	1
Print out	0	3	3
Partial Save	0	0	3
Bank Save	3	3	3
Tone Save	3	3	3
Drum Save	3	3	3

NEW!!
Released At The
Second MIDI
Music Show

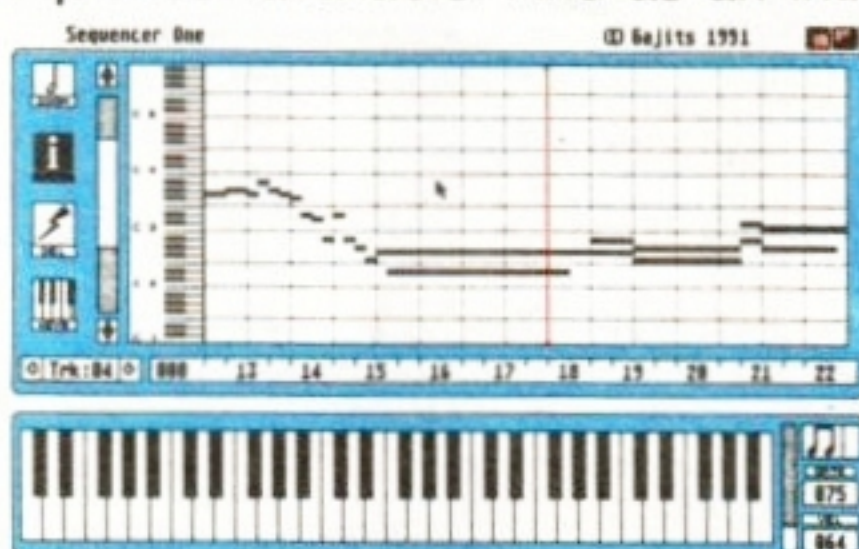
TM

AMIGA

Sequencer One

Professional
Quality Software
Developed Here
In The UK!

If you want to make music, the newest and most friendly music program for the Amiga could be just what you're looking for! Sequencer One **combines** powerful MIDI capabilities with four channel stereo sound output through the Amiga's own sound chip. 32 tracks, three graphical edit screens, and an outstanding telephone helpline service, make Sequencer One the best value (and best supported) sequencer available. And as an introductory offer, every copy of Amiga Sequencer



One comes with a free copy of Gajits' The Hit Kit! music composition software **plus** a free bank of sampled sounds, including lead instruments, percussion, and effect samples.

To find out how you can get your copy of Sequencer One, or for a **FREE** info pack, call Gajits **TODAY** on **061-236 2515!**



© 1991 Gajits Music Software, 40 Princess Street, Manchester. M1 6DE. Tel: 061-236 2515. Fax: 061-236 4044.
Gajits Music Software produces a whole range of music software products for the Amiga, ST, and soon the PC. Please phone for details.

ZONE Distribution

5 Abbeville Rd
London SW4 081 766 6564

Why Dr T's ?

Dr T's produce more AMIGA music software than any one. From Copyist Apprentice, a 16 stave notation package and X-oR, the new genric editor/librarian supporting over 90 different midi devices to Phantom, the bit accurate SMPTE/MIDI interface compatible with many video applications. Dr T's support their products with regular updates giving you new exciting features so buy any Dr T's product in the knowledge that it will offer good value, features and support. Only the longest established music software house can offer you these guarantees. We have just released 1 new program, X-oR and issued a major update to the long established KCS sequencer.



Dr.T's

MUSIC SOFTWARE

Why ZONE ?

ZONE Distribution has now been appointed the Exclusive UK distributor for the full range of Dr T's products for the Amiga, ST, PC and Mac. As the distributor we can give all registered users full telephone support on products bought from us or one of our authorised dealers. Call to find out if you qualify for this support. If you have an unregistered Dr T's product contact us and we will advise you of how to register.

MIDI SEQUENCERS FOR AMIGA

Over 1200 professionally programmed hits in Amiga midifile format. From 50's through to current chart material. Call for full list + prices.
(Also available on ST, Mac, PC + hardware sequencers).

Attention all MUSIC X owners
upgrade your MUSIC X to the new KCS 3.5 for just £149 saving £130

KCS is the most powerful MIDI sequencer available for the Amiga. Its ease of use, reliability and rock steady timing have made it many friends. Regular updates also make it the best supported. Now with even more features like realtime graphic editing and notation, the new KCS 3.5 is the only choice for the serious Amiga musician.



a few features

- Graphic Tape Recorder interface
- TIGER realtime Graphic editing
- Quickscore Notation display/ printing
- Exclusive Multi program environment
- Draw and edit all MIDI data in realtime
- 48 tracks/126 sequences/16 songs
- Intuition based with full menus
- Variable resolution up to 384ppq
- Read and write midi files
- Automix, on board MIDI Mixer
- Full quantise and loop record
- Supports full SMPTE and MSP

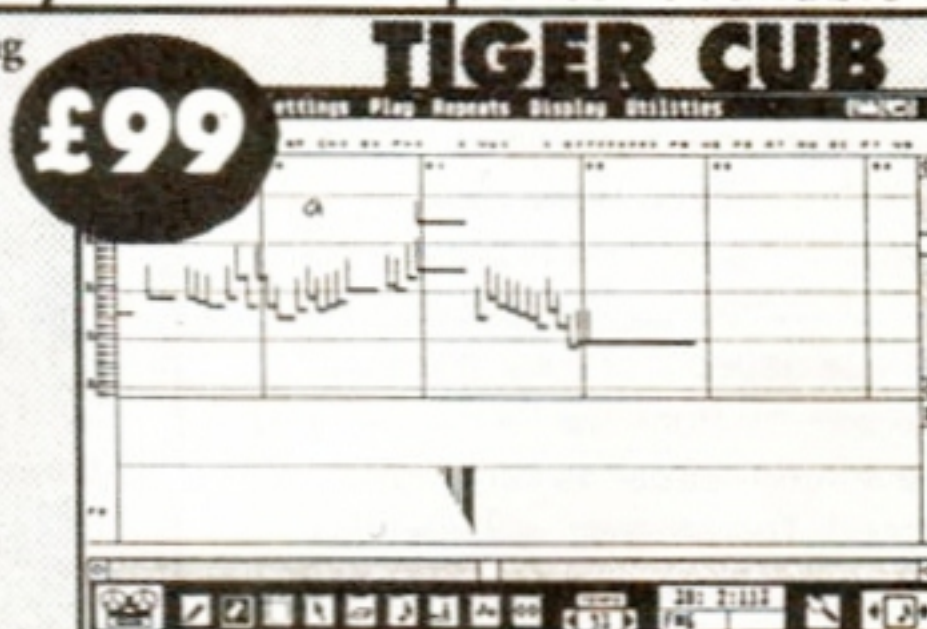
STEAMING HOT OFFER

Take advantage for a limited period only. Dr T's CAGED ARTIST EDITORS at £59. Each editor offers full control over your synths parameters with graphic envelopes, patch randomisation, full librarian facilities and much more. Available for Roland D series, Yamaha 4 & 6 operator synths, Casio, Oberheim, Korg M1 and more. Don't be disappointed, CALL 081 766 6564 and order one NOW!

All Dr T's Synth editors just £59 SAVE OVER 40%

'TIGER Cub, the best entry level midi sequencer available'

- 12 track multi channel sequencing
- full graphic editing in realtime
- 12 track musical notation
- Printout musical notation
- Read and write midi file
- Friendly graphic interface
- Drum style loop recording
- Supports Multi Program Env.
- Draw tempo's, controllers etc
- Smart instrument set up
- variable resolution to 384 ppq



POST HASTE

ALL PRICES INCLUDE VAT & DELIVERY TO YOUR DOOR!!!

VIDEO	Superbase Professional	149.99	Photon Paint	6.99	Deluxe Music Construction Set	49.99	Lets Spell at Home	14.49	SCSI H/D(45,90,135,173)from	199
Photon Video (Cel Animator)	Superbase Professional 4	209.99	Deluxe Photolab	49.99	Quartet	35.99	Lets Spell at the Shops	14.49	A590 Upgrade(inc Fit&Ret)from	229
Deluxe Video III	INTEGRATED (TYPING)		Movietester	39.99	Music X Junior	74.99	Mickey's Runaway Zoo	17.99	3.5" External Floppy Drive	55
Aegis Animagic	The Works Platinum	69.99	Real Things Birds	24.99	Tiger Cub Incl. Interface/leads	79.99	Math Talk Fractions	17.99	512k Ram Expansion no clock	25
Broadcast Tiller 2	Gold Disk Office	109.99	Real Things Humans	24.99	Bars & Pipes Professional	174.99	Mavis Beacon Teaches Typing	20.49	512k Ram Expansion + clock	29
AmigaVision	DTP	89.99	Real Things Horses	19.99	MISCELLANEOUS		Puzzle Book II	14.49	1.5 Mb Ram Expansion	89
Scala	Pagesetter 2.0	174.99	ProFills	24.99	BAD Disk Optimiser	34.99	Puzzle Storybook	17.99	Colour Solution(Vidi+RGBsplit.)	159
TV Text Professional	Pro Page 2	89.99	Pixmate	37.99	Cross Dos 4	29.99	Smoothtalker	17.99	Sharp JX100 A6 Col. Scanner	625
TV Show 2	Pro Draw 2	49.99	Butcher	27.99	Dos 2 Dos	39.99	Spellbook	14.99	Golden Image Hand Scanner	175
VideoTiller 1.5 3D	Outline fonts	69.99	The Art Department	49.99	Disk Master	39.99	Weather Watcher	17.99	Podscat Graphics Tablet	199
WORD PROCESSING	Gold Disk Fonts 1-4	39.99	The Art Department Pro.	134.99	Facc!!	24.99	HARDWARE		Zydec Microswitched Mouse	15
Scribble Platinum	Structured Clip art	39.99	Kara Anim Fonts 1	29.99	GB Route	34.99	Amiga 500 Basic	319	Naksha Mouse	19
Kindwords 2	Eclips	39.99	Kara Anim Fonts 2	29.99	Icon Paint	9.99	A500 Screen Gems 1Mbyte	379	Turbo Mouse	12
Interword	Proclips	39.99	Kara Anim Fonts 3	29.99	Quarterback Hard Disk Backup	49.99	A500 Cartoon Classics 1Mbyte	379	Mouse Mat	4
Penpal	Deluxe Print II	89.99	Kara Fonts Headlines 1	49.99	Quarterback Tools	59.99	A500 Class of 90's 1MB	469	50 Blank Disks	20
Excellence 2	X-CAD Designer	74.99	Kara Fonts Headlines 2	44.99	Byte'N'Back Hard Disk Backup	18.99	A1500 Including Monitor	888	Philips 8833-II	239
Protext 4.2	X-CAD Professional	109.99	3D MODELLING & RENDERING		EDUCATIONAL		A1500 No Monitor	649	Commodore 1084s	254
Protext 5.0	Aegis Draw 2000	99.99	Sculpt 3DXL	79.99	Three Bears	16.49	A3000 from	2099	Star LC200 Colour	219
ProWrite 3.1	ACCOUNTS	99.99	Sculpt Animate 4D	17.99	Donald's Alphabet	17.99	CDTV	569	Star LC24-200 Mono	259
Wordworth	Home Accounts	27.99	Vista	34.99	Dinosaur Discovery Kit	17.99	A590 20Mb Hard Drive	279	Star LC24-200 Colour	299
Word Perfect 4.1	Cashbook/Final Accounts	44.99	Vista Professional	74.99	Deep sky Objects	14.99	A590 20Mb H/Drive+2Mb RAM	359	Qtizen Swift 9 Colour	199
Word Perfect Library	Personal Tax Planner	29.99	Imagine	159.99	Skymap Expansion	14.99	Trumpcard 500 40Mb H/Drive	539	Qtizen Swift 24 Colour	299
SPREADSHEET	Personal Finance Manager	21.99	3D Professional	99.99	First Letters & Words	17.99	Trumpcard 2000 40Mb H/Drive	519	Canon Bubblejet Portable	289
Advantage	Small Business Accounts Cash	59.99	Real 3D Beginners	99.99	Fun School II (2-6)	14.49				
DG Calc	Small Business Accounts Xtra	79.99	Real 3D Turbo	299.99	Fun School II (Over 8s)	17.99				
DATABASES			PROGRAMMING		Fun School III (Under 5s)	17.99				
Infotile			AMOS	35.99	Fun School III (5-7)	17.99				
Superbase Personal 2			AMOS Compiler	20.49	Fun School III (Over 7s)	17.99				
			Devpac 2	49.99						
			Lattice C	219.99						
			Hisoft Basic	57.99						
			Hisoft Basic Extend	14.49						
			MUSIC							
			Deluxe Paint 3	54.99						

You name it... We do it... Just phone and we'll quote...

We are faster and cheaper!

POST HASTE, 11a Burgate Lane, Canterbury, Kent. CT1 2HH

TELEPHONE HOTLINE 0227-764204 9.30am to 7.00pm

Visa, Mastercard, Eurocard and PO Orders are despatched same day!

Please allow up to 4 working days for cheques to clear.

MAIL & TELEPHONE ORDERS ONLY. NO PERSONAL CALLERS PLEASE!

continued from page 105

will ensure that the whole setup is sent every time it is required.

CMpanion has a very clear presentation, with all aspects on view. The window of the setup is actually display-only and non-active, but by clicking on any of the other areas you can quickly adjust the sounds: volume transposition fine tuning, pitch bend, pan, MIDI channel and reverb. The 'reverb global' setting is also here in a separate window. This is a very easy screen to use, helped by the voice banks that pop up when the voice is clicked. Any voice in the tone bank can be transferred by merely clicking on it, which makes creating a setup extremely rapid. Perhaps it could be improved by having the setup window area active for the other peripherals instead of going to the 'select part' box in the screen lower right, as you can be playing one sound whilst reading the display of another.

Caged Artist's setup page has a central window with the eight sounds listed and their attributes running to the right in columns. Click on any one and you play it instantly. However, you have to use the right-hand scroll bar to place different sounds in the parts, and this can be time consuming – particularly if you are not too sure where they are in the voice banks. If you know the voice number you can enter this directly. The global reverb setting is accessed from here as well.

RANDOMISE

I'm not totally convinced about the randomise functions in *X-Or*, which

appear to rely on you deciding which areas you want to randomise. I would much prefer an approach which looks at the synth's parameters as a whole and 'intelligently' decides which ones to attack given an overall guideline – smooth, bright, weird or whatever. This would be far more user-friendly and not make what is supposed to be a boon for the user into a somewhat uncertain process.

This approach was echoed by the other programs, which tended to assume a reasonable knowledge of programming which most users probably haven't got.

LIBRARY FACILITIES

Caged Artist allows you to save individual partials, which means that you can merge parts of one sound with another. *CMpanion* won't do this, and neither will *X-Or*. All the programs will save entire setups, banks of tones or individual tones and drum kits, and there is no real problem in any of their disk operations or the construction of new banks from others. However, you should be aware of *X-Or's* ability to give each sound an attribute and search through its files, when so requested, to find sounds with particular characteristics.

PLAY IT AGAIN, MOUSE

All three programs have the ability to play the notes from the screen by using the mouse. Pitch is left to right and velocity is bottom to top. *X-Or* goes one further in that you can choose what scale you want to work in and test out other MIDI controllers for the sound – sustain, breath, and

so on. With *CMpanion* you can play with the mouse or from the connected keyboard, but there doesn't seem to be a way of using both simultaneously. Both *Caged Artist* and *X-Or* merge and 'rechannelise' the incoming notes

these items to your system (The CM range was specifically designed by Roland for use with computers). However, you can't print out any of the voice banks unless you can graphically print out the Amiga screen using a screendump utility.



The opening screen of *Caged Artist* which does not use Workbench, although you can still multi-task from a CLI window.

from an external MIDI keyboard; it doesn't matter what MIDI channel they come in on.

MULTITASKING MEMORY

Of course, you could go the whole hog and have a sequencer running simultaneously if you have enough memory. *Caged Artist* takes up about 250K of memory and will run with Gajits' *Sequencer One* quite happily since you can return to a CLI and from there to the Workbench. The same is true of *CMpanion*, which occupies a similar amount of RAM.

X-Or needs a little more memory, just over 300K, but refused to load any screens other than its performance memory with a sequencer resident in the memory of a 1Mb Amiga. To use the full force of multitasking with *X-Or* you would need at least 2Mb of memory and it would be best to use it with another Dr T sequencer as they enjoy a high level of compatibility and can transfer data from one to another directly.

OTHER CONSIDERATIONS

Caged Artist has a 'print out' feature but doesn't seem to want to multitask very easily. Some *Caged Artist* software will run with several related synths but in the case of the MT-32 you can only work with the one module.

CMpanion will work with the Roland D-5, D-10, D-20, D-110, MT-32, CM-32P, CM-32L, and CM-64. This is a rather impressive list and apart from broadening the sales base for the program it may also save you buying another piece of software should you add one of

X-Or has numerous other features. You can blend and mix voices together from the same synth or copy groups of sound parameters across from one sound to another, it can search for sounds and it will also load in sounds from any of the *Caged Artist* series and print out both performance and voice bank data. Thanks to its multiple window environment, it is not too hard to get from one area to another quickly.

WHAT INSTRUMENTS?

Caged Artist series: these have been running for some years, and cover a wide range of synths – Casio VZ and CZ series, E-mu Proteus, ESQ1, Yamaha 4 Op FM, Kawai K1 and K5, Korg M1, Oberheim Matrix 1000, Roland D110 and MT32.

X-Or: it would be easier to list the instruments that this application can't yet program! If you have something that is a little obscure you could write to either the UK distributors or Dr T directly in the States. Other than that, it can cope with over 90 synths and there are more profiles regularly available.

At present, Gajits' only voicing software for the Amiga is the *CMpanion* as covered here, and this program only works with the instruments listed earlier.

FURTHER TESTS

Although the main comparison has been done for these programs using the MT-32, I tested out two other synths that work in very different ways to see how these fared. First, the Yamaha DX 100.

continued on page 108

JARGON BUSTING

Algorithm – Yamaha's term for the configuration of operators (qv) to create sound.

Envelope – The shape of a sound. This can apply to either pitch, amplitude or tone (filtering). If applied to amplitude it defines at what point in time the sound increases or decreases in volume from the point when the note was struck.

FM – Frequency Modulation. The elder statesman of digital synthesis, as developed by Yamaha. It originally modulated sine waves to create complex waveforms.

Operator – a block of sound in an FM sound algorithm that can be shaped individually.

Partial – A short, sampled section of sound as used by Roland in its synthesizers as a building block for synthesis.

Structure – The configuration of partials that create a sound.

Systems Exclusive – The part of the MIDI code that transmits data which usually carries direct information to program the sound chips. It will only apply to the make and model of instrument it is addressed to.

Tone – Can also be termed as a 'timbre'. Usually applied to one sound in its entirety.

Unit Number – Sometimes called a Device Number. The Systems Exclusive number/channel required by some instruments before they will 'talk' to the computer.

continued from page 107

The DX 100 is now several years old, and is only capable of producing one sound at a time, but like all FM synthesizers it is not easy to program. The basis for creating sound is four separate sine waves (called 'operators') which can be given different frequencies and sound envelopes and then arranged and connected in different configurations (called 'algorithms'). The sound produced is a result of the sine waves modulating which

or off. The randomise seems very dogmatic and pedestrian as well.

To be fair, this program is now over four years old, and the design of voicing software has moved on in leaps and bounds since then. Having said that, the original Yamaha software (dating from 1984) that ran on that company's ill-fated MSX computers was streets ahead of this – it was extremely easy to understand and use.

X-Or has a far superior graphic display and is much easier to

methods, using combinations of FM-created sounds and sampled sounds. There are multiple voice files, micro tuning tables, pan tables (the panning process is rather like a separate miniature synthesizer!) as well as individual voice files.

X-Or's help page, which in itself is several screens long, has a small caveat which warns that this has not been fully tested. At present, the program is a bit stumped by the SY77 and tries to do too much, perhaps at the expense of the basic problem of programming an individual sound. As it was, it failed to retrieve individual sounds from the instrument and one or two functions simply failed to work. The voice programming screen left out areas like the graphic control of sound envelopes, which made sound creation rather impossible. I suspect that it will take several upgrades of this profile before SY77 is completely mastered. In fairness, it is heavily rumoured that the MIDI data supplied by Yamaha is inaccurate, which is a rather bad starting point anyway.

IN CONCLUSION

X-Or really requires a high-res screen to read the descriptions of the parameters. If you are a beginner then I think you would have to be prepared for quite a long indoctrination process, as you will need to know how each synth addresses MIDI before you start, not to mention the many faces that this powerful program has. To this end, perhaps the help pages could be more useful, since you could print them out and use them as brief guides to your instrument. For someone with a little knowledge, though, it is a very powerful control centre with seemingly no limit. Not perfect in every respect when it comes to programming but a superb program and, well, it's a high ultimate tool. **AS**

SHOPPING LIST

Caged Artist MT-32/4 Op Deluxe...£59

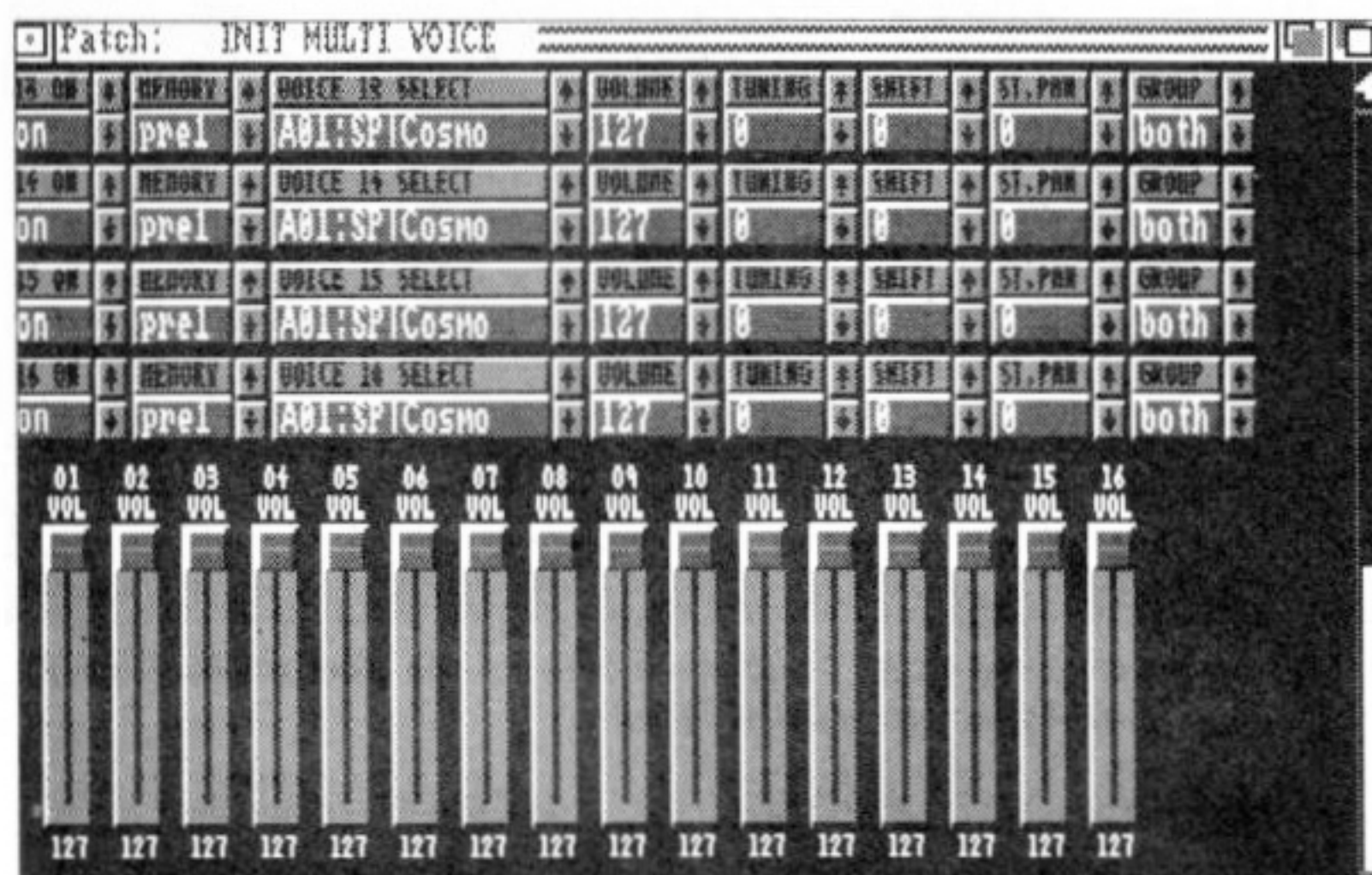
X-Or.....£219

by Dr T Music Software,
100 Crescent Road,
Needham, MA 02194 USA
☎ 010 1 617 455 1454

Distributed in the UK by
Zone Distribution,
5 Abbeville Road, London SW4.
☎ 081-766 6564

CMpanion.....£99.99

by Gajits Software,
I-Mex House, 40 Princess Street,
Manchester M1 6DE.
☎ 061-236 2515



Setting up a multiple voice patch for the SY77 in X-Or. The faders individually adjust the volume for each of the 16 parts.

produces an extremely complex final wave form.

Gajits has no software for this range, so the comparison must be between X-Or and Caged Artist: 4 Op Deluxe, which will also program the TX81Z, FB01, DX27 and DX21.

Now somewhat long in the tooth, 4 Op Deluxe does not use a menu environment, but instead makes use of the function keys to get around the different areas of sound creation and storage.

The main screen is the sound creation page; to edit you must click on the parameter to be altered and then either key the new value in numerically or use a long upright sliding scale to the screen right – a rather tedious and long winded process. The program does tend to assume that you know quite a bit about FM programming, and relies heavily on numeric displays as it only uses one graph: the operator that you are working on is highlighted whilst the other three are represented by broken lines. It would have been better and more fun to use if it made greater use of graphic displays to control other parameters like keyboard scaling, as with the company's MT-32 editor. Although the cursor accesses screen areas, it seemed to be easier to use the up and down keys. One main problem is the algorithm configuration display, which is far too small: it is difficult to know which operator is switched on

access, with a separate graph for each operator's sound envelope, again using the scrolling single screen concept. Oddly enough, the algorithms are numerically described rather than graphically displayed, which is a bit of a let down, and there seemed to be no way to turn individual operators off or on – which can be very important when you are building up sounds.

Thanks to the pop-up windows, all parameters which are not controlled by the faders are extremely easy and quick to change and in general the process is fairly self-explanatory. The help page is not much use, though. Generally this is a much easier approach than 4 Op Deluxe and although not the last word in programming the DX 100 it is certainly not a second-rate one.

The ultimate test could only be carried out using X-Or, and this was on the Yamaha SY77, the company's current flagship synth and one of the most complex synthesizers to date (disregarding £500,000 bankruptcy winners like the Synclavier).

I have only ever seen one dedicated voice programmer and librarian for the SY77 (running on any computer) and this is certainly the first time that the Amiga has been given an opportunity of taming its innermost secrets. Without going into too much detail, the SY77 is capable of creating sounds by no less than seven different synthesis

CHECKOUT CMpanion

Documentation ●●●●●
Well written with the beginner in mind.

Functions ●●●●●
Comprehensive and business-like.

Speed ●●●●●
No problems here.

Ease of use ●●●●●
If the tone editor was more graphic it would score higher.

Price ●●●●●
Good at £99.99, as you are getting software for lots of instruments.

Overall rating ●●●●●

Although the program could be slightly improved in a couple of areas, it does cover several synths very well, with the minimum of fuss.

CHECKOUT CAGED ARTIST MT-32

Documentation ●●●●●
Clear and easy to follow.

Functions ●●●●●
Comprehensive beyond the call of duty.

Speed ●●●●●
Some odd quirks in data entry.

Ease of use ●●●●●
Clear graphics, hence high rating.

Price ●●●●●
£59 is a fair price, but the program only works with one synthesizer.

Overall rating ●●●●●

A well-balanced program; it's just a pity that it can't work with the other similar Roland products.

CHECKOUT X-OR

Documentation ●●●●●
Makes a fair attempt at a very complex program.

Functions ●●●●●
Utterly brilliant in general; some editors are suspect though.

Speed ●●●●●
Very quick and responsive

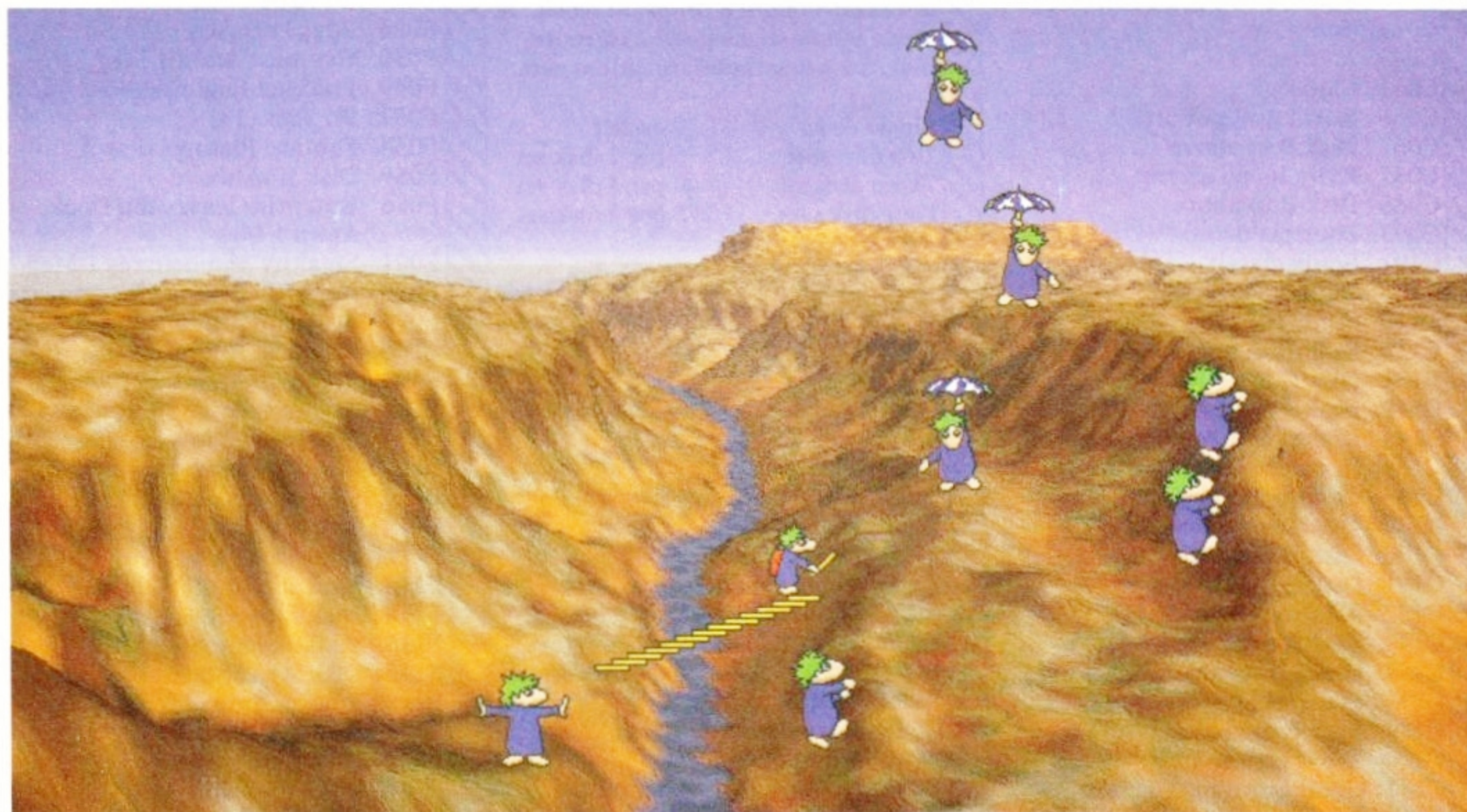
Ease of use ●●●●●
You'll need time to absorb all the features.

Price ●●●●●
£219 is more than fair for what you get.

Overall rating ●●●●●

Actually, perhaps four and a half out of five, but the program increases to a five out of five rating as you get to know it. I only really have one complaint – get those editors sorted out!

You reckon good graphics stop at 32 colours?



Get real!

Amazing game, that Lemmings. Those little fellers are so cute, aren't they? Incredible what some of these game programmers can do with a 32-colour Amiga game.

But why stop there? Don't you realise that the Amiga can do a whole lot more besides? Yeah, sure, there's the famous HAM painting programs that help you create pictures with 4,096 realistic colours in, which is good stuff. But is it good enough?

Not any more, no! The very latest thing in computer graphics is 24-bit colour, a cunning combination of hardware trickery and software excellence that lets you create pictures with up to 320,000 colours on screen, from a palette of more than 16 million. It's known as True Colour, because you can make pictures that look as real as the best colour photographs.

Which is why our Lemmings are traversing a grand canyon that really looks like the Grand Canyon, even though it's an imaginary landscape created entirely by the Amiga and an £80 program called Vista.

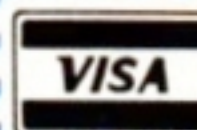
If you want to be in on the very latest thing in Amiga graphics - the very latest thing in computer graphics, full stop! - then you need to check out the next issue. Get up to date with a scene that's really going places!

You mustn't miss Amiga Format Issue 27, on sale September 12
Don't get left behind as Amiga graphics enters a new era!

C & N Computers Amiga Public Domain



354 High Street, Chatham, Kent. ME4 4NP. Orderline 0634-831870



Music Section

- C006 Sonix No. 1
- C030 Share & enjoy equalizer
- C029 Sonix No. 7
- C043 Alf demo 1
- C061 Classix 1
- C066 Royal Amiga Force 1
- C067 Disk B to above
- C087 Kylie Its no secret
- C088 Disk B to above
- C093 Bacteria demo
- C101 Sonix classix
- C108 Digital concert 3
- C113 Sonix No.17
- C130 Budbrain demo 1
- C131 Disk B to above (18)
- C142 Digital concert 1
- C143 Digital concert 5
- C156 Donald weres yor trousers
- C163 Genesis Land of confusion
- C189 Treacl mega demo Disk A
- C190 Disk B to above
- C191 Disk C to above
- C192 Alkatraz demo disk A
- C193 Disk B to above
- C194 Disk C to above
- C198 Star trekking disk A 1 Meg
- C199 Disk B to above
- C200 Xmas carols
- C201 Good Morning Vietnam
- C210 Alf demo 2
- C229 Hot wired
- C236 Turtle demo by sector 16
- C244 Amazing Tunes disk A
- C245 Disk B to above
- C246 Disk C to above
- C248 Budbrain 2
- C303 Startracker V1.2
- C305 Sonix No.5
- C308 Zenn sound box
- C324 Noisetracker
- C327 Turtle power disk A
- C328 Disk B to above
- C329 Disk C to above
- C356 Beatmaster 808 state
- C367 Ultimate FX
- C380 Mucky Morris & the Cowpats
- C410 Digital Concert 2
- C411 Digital Concert 3
- C412 Digital Concert 6
- C416 Blues Brothers disk A
- C417 Disk B to above
- C418 Disk C to above
- C419 Dr Awesome & Fleshbrain
- C425 Arni sampled off radio Disk A
- C426 Disk B to above
- C428 Smith & Jones 1 (18)
- C429 Smith & Jones 2 (18)
- C430 Smith & Jones 3 (18)

All public domain disks are virus checked with the latest version of the Master virus killer. Anyone finding a virus on one of our disks please let us know and it will be removed from the disk.

Amiga Public Domain Prices

Prices vary on how many disks are needed to make a program work. ie some music disks need 2 or more disks to work these are called sets.

Single disks	£1.50 each
Two disk sets	£2.75 per 2 disk set
Three disk sets	£4.00 per 3 disk set
Four disk sets	£5.25 per 4 disk set

Min order 5 disks

More disks are in the collection, too many disks to list here. Last count over 900.

Utility Section

- E001 SID
- E017 Printer utilities 1
- E020 Fonts disk 1
- E021 Fonts disk 2
- E022 Label designer
- E028 Ultimate utilities
- E029 Virus Killers disk 1
- E032 Boot block makers disk 1
- E034 Printer utilities 2
- E045 Business card maker
- E046 Viruscope (good)
- E051 Ncom V1.9 (modem util)
- E056 Tetracopy
- E057 Catalogue Workshop
- E063 C Manual
- E070 QL Emulator
- E071 Disk B to above
- E072 Disk C to above
- E074 Spreadsheet
- E083 Master virus killer
- E088 Textplus word processor
- E094 Flexi Wosname database
- E105 North C
- E114 Slideshow construction set
- E119 Dope intro maker
- E130 Rim database
- E140 A gene geneology program
- E141 Forms really unlimited
- E153 Disk crunchers

Games

- D004 Monopoly USA version
- D008 Paranoid (Breakout game)
- D013 Peters Quest
- D020 Poker Solitaire
- D026 Blackjack/Solitaire
- D027 Star Trek disk A
- D028 Disk B to above
- D035 Break out games
- D044 Flashbier
- D052 The Drip
- D054 Breakout Construction Set
- D057 Letrix
- D065 Wet Beaver Tennis Game
- D069 Tiles/Battleships/Chess/Tetris II
- D070 Tomtespetet (2 player)
- D071 Return to Earth
- D072 Star Trek the Next Generation
- D074 UGA Games Compulation
- D075 Snake Pit Game

Graphics Section

- F011 Space Ace demo
- F015 3D Arm
- F025 Pugs in Space
- F030 Gymnast Amin 1 Meg
- F049 Fractal Flight demo
- F057 Viz Pics (18)
- F058 Fantasy Pictures disk A
- F059 Disk B to above
- F086 Entepreise leaves the Dock Anim 1 Meg
- F091 Stealthy Manoeuvres 1 Meg
- F097 Argatron Anims 07
- F098 Argatron Anims 24
- F100 Argatron Anims 02
- F101 Argatron Anims 22
- F102 Argatron Anims 23
- F104 Argatron Anims 17
- F109 Clip Art disk 1
- F110 Clip Art disk 2
- F111 Clip Art disk 3
- F112 Clip Art disk 4
- F113 Walker demo 1 2 Meg
- F114 Disk B to above
- F115 Walker demo 2 2 Meg
- F116 Disk B to above
- F125 Station Anim 2 Meg
- F126 Disk B to above
- F127 Disk C to above
- F141 Fillet the fish 1 Meg
- F164 Tobias richter slideshow
- F165 Disk B to above
- F166 Lost In Space Anim 2 Meg
- F167 Disk B to above
- F168 Disk C to above
- F170 Batman the movie 1 Meg
- F173 Juggler meets the lady
- F174 Fantasy space slideshow
- F176 Mandlebrot generator
- F179 Iraq demo 1 Meg
- F180 Amy the Squirrel at the Movies 2 Meg
- F190 Tron Anim 1 Meg
- F191 Disk B to above
- F200 Robin Hood slideshow with music (Cartoon)
- F209 Life of Brian slideshow with samples from film
- F219 Franklin the Fly anim
- F228 Italian Job digi Anim 1 1 Meg
- F229 Italian Job digi Anim 2 1 Meg
- F242 Stealthy Manoeuvres Swiss army F16 Anim

Directory disk £1.50 inc P&P. Contains some free PD utilities/music. Orders taken 24hrs a day on the answerphone payment via Access & Visa or mail order payment by postal order or cheque made payable to:
C & N COMPUTERS
 Orders despatched within 24hrs (Mon-Sat). Phone orders despatched Mon if given on Sundays.

Shopper Reader Ads

Now you can reach thousands of fellow Amiga owners for only £5

FOR SALE

Amiga A500 Batpack, A501 Cumana ext. floppy, 1084 monitor, A590 hard drive. All boxed as new incl. manuals/software. Sell complete for £750. Will deliver mainland UK. ☐ Keith 0273 506266

Latest A500 1Mb, Fat Agnus, warranty to Dec. '93. All original books, disks, house, modulator, etc. Best of screen gems plus Kindwords pack, dictionary, etc. included. £300. ☐ Ben, 0491 974690

2Mb Amiga A500 + A501 + A590 + 1084 monitor + Star LC24 printer + 2 mice + analogue joystick + switched joystick, £600. Top games £10 each. Both ROM Kernel manuals + Devpac 2 £50. Pro genlock £40. Modulator £50. Potters Bar ☐ 0707 43583

Brother M-1109 9-pin printer, serial and parallel interfaces, complete with pin feed unit, connecting cable for Amiga, manual and four ribbons. £60. ☐ Steve 021 358 2061 after 6 pm.

A500 Accelerator CSA Mega-Midget Racer 08030, math co-pro, 8Mb, 32-bit RAM, shadow ROM, fully checked, amazing speed! Serious offers only please. ☐ Nick (evenings) 0274 021118

DTP ProPage 2.1 latest version, brand new, never used, unwanted gift. Complete with video tutor, fully boxed,

just £149. Usually £180, quick sale. ☐ Andrew 081-560 6116

Star XB-24-10 24-pin dot-matrix professional printer with colour kit, 2 black ribbons, 2 colour ribbons and lead. Still under warranty. £320. ☐ David, 0942 270417 (Warrington)

Amiga A500, 1084 monitor, A501 RAM expansion, external drive, mouse, joystick, serious software plus some games. All manuals included. £550 ono. ☐ Nigel 0703 220519 (Southampton)

Software AMOS £20, GFA Basic + Compiler £30, Eye of the Beholder £12, Railroad Tycoon £14, Conquests of Camelot £14. ☐ Iain on 081-675 6419 (Evenings or w/e)

Amiga A500 1Mb expansion Cumana external drive, 50 P.D. titles, software, solid Perspex dust cover, modulator, mouse, manuals, boot blocker, disk box, virus killer. £500. ☐ 0782 783146 after 6.30 pm weekdays.

Amiga 500 WB1-3 plus 510K expansion and second drive with CM8833 monitor plus mouse modulator and Track Ball £500. 20Mb hard drive + 1Mb £195. Write G.S. Dutton, 40 Grafton, Harwich CO12 3BD

CMB64 (warrant) £90. 1541 drive £90. Two datasets £30. Universal Printer Interface £15. Simon's Basic, Easyscript, Mini Office £20 or £210 the lot. Write G.S. Dutton, 40 Grafton,

Harwich CO12 3BD

AT Bridgeboard VGA card, monochrome VGA monitor, PC Tools V6, Supercalc 5, Timeworks DTP, games £600. Migraph hand scanner with TouchUp software £150. Quantum 40Mb hard drive £200. ☐ Roger 021-308 8188

Amiga A500 Philips 8833 monitor, second disk drive, 0.5Mb expansion £450 + software, mags, etc. Complete system, all boxed as new. Hardware items still under guarantee £640 ono. (Will split) Please call ☐ 0629 55873.

Amiga books for sale. All in new condition. ROM Kernel auto docs £15. ROM Kernel libraries £15. Hardware manual £10. Best Amiga tricks, tips £12. Plus others. ☐ 0332 360199

BBC Master Compact 128 twin disk drives Cub colour monitor Epson MX80 printer plus original manuals, games, software and Mini Office II £300. ☐ Norman 081-337 4612, Surrey

WordPerfect V4.1 on four disks covering word processor spell/thesaurus print and learn plus manual, requires 1Mb RAM, still in original packing £80. ☐ Formby 07048 77172 after 6 pm.

Upgrade to A2000 the following are no longer needed: Xetec Fast Trail complete system £150. CDL A1500 kit £150. Screen Gems software pack £20. 200 watt power supply £50. ☐ 081-450 2898.

A1500 pack. All software, manuals. Two months old (guaranteed). 8Mb RAM board 2Mb populated. Philips CM8833 monitor, worth £1,150. Economic situation forces reluctant sale £700. ☐ Marc 0702 529080, 6 pm +.

Commodore 64 in perfect working condition, including over 100 games and educational software. Will sell for £100. Psion Electronic Organiser with extra memory pack. £30. ☐ Martyn on 0732 359567.

Amiga B2000 Rev 6.2 second 3.5-inch internal drive, 20Mb autoboot hard disk Philips colour monitor, software and manuals £950 ono. ☐ Pete Reynolds on 0533 785356 after 6 pm.

Works Platinum £60 unused and still boxed. Deluxe Paint III, also unused and boxed. £50. ☐ Richard on 033525 393 (Prices include postage)

Transwrite and PenPal in good condition (Word Processors) ☐ 0704 76081.

Amiga Computing 1-36 incl. + disks, Your Amiga 1-12 Incl. Amiga User Int'l 1988-91. Prefer sales of complete years. Best offers. ☐ D Stock 081-995 8221 9-5 (M-F) or write 2 Grange Road, Bishop's Stortford, Herts. CM23 5NQ.

Superpic Real Time Colour Digitiser, Framstore and Genlock £350, Rendale Genlock 8802 with software and switcher control £110. ☐ 071-605 3305, office hours.

ATonce IBM PC Card, A500 version,

latest EGA and VGA Software, or will swap for A2000 Flicker Fixer. Bargain price £130. ☐ Mr S Evans 0707 261211 after 6 pm.

Amiga A500, extras, 512K upgrade 2nd disk drive and IBM printer, much software, 5 cart lead, mouse mat, boot blocker, dust cover. Perfect boxed condition £375 ovno. ☐ Derek 0202 885555.

Hitachi High Resolution B/W Video Camera, copy stand with professional lights, used for digitising £300 ono. 20 Mb Hard Drive for A2000 XT Slot, Amiga/MS-DOS compatible £150. ☐ Craig 060684 3496

SAS/C Lattice C 5.1 Development System 4 weeks old. Will sell for £105. Cornwall ☐ 0579 370257 any time.

PD for FREE! Send me your list, I'll send you mine. Send to Mr T Hill, 3B Bear Street, Barnstaple, Devon EX32 7BU.

Selling everything Amiga 2000HD, AT2286 Bridgeboard, Graphics Tablet, Deskjet printer, Propage, Prodraw, DPaint III, Lattice C, CanDo, games, books and much more. ☐ Steve 081-368 4723.

Real 3D Pro-Turbo version (768000 Processors only!) Ray-Tracing Package. 1 Mb+, complete RRP £360. Sell for £230 ono. ☐ Nick 0274 621118 evenings.

Star LC24-200 Mono Printer only. 3 months old, complete with reams of paper £200. ☐ 081-539 6556 day or 081 554 4271 eve/weekends.

Only £5 to sell your used hardware and software in Amiga Shopper

Sell your excess hardware and software with *Amiga Shopper* Reader Adverts. Just fill in the form and send it to us along with a cheque (made payable to Future Publishing) or postal order for £5. But **BE WARNED**. This magazine is not a forum for selling pirate software or other illegal goods. Software must include all issue disks, manuals

and a signed statement that all other copies have been destroyed. Please advise us if you are offered pirate or copied software by advertisers. All ads are accepted in good faith. The editor reserves the right to refuse or amend ads. We accept no responsibility for typographical errors or losses arising from the use of this service.

Trade ads will not be accepted, including anyone advertising the sale of PD software.

WANTED

Amiga wanted, any age with joystick and software, will pay up to £250 cash and will collect. Also interested in external drive, memory expansion and colour monitor. Please phone 0533 538545.

Amiga Format magazines, issues one to seven, will pay reasonable price for - Contact Adrian on 0271 42287

FANZINES

S.E.P.D. Fanzine Disks: Two disk magazine on everything P.D., including examples of the best demos and animations. Price £2.50 cheques payable to Dean Hartwell, 7 Ringwood Avenue, Redhill, Surrey RH1 2DY

The Disk issue four. Contains Label Print, StepRate, Tron 90 game, Octamed 8 channel music demo, Tetracopy, Typing Tutor, plus tutorials, articles, news and gossip. send £1 for disk four! 6 Stubbing Brink, Hebden Bridge, Yorks.

Fantasy Program contains 280 tips, with slideshows, utilities, etc. Please send disk with £1. First class post. F Anderson, 1 Yarrowdene, 12 Dirleton Avenue, North Berwick, East Lothian EH39 4BG

Help - TME only Amiga disk mag, win 20 disks of PD in 1st issue, for a free sample disk send SAE to J Webb, 17 Fairue Ave, Mansfield, Notts NG19 6RN.

For techies and beginners alike Guarded Realm Software disk based magazine is for you. Write to: Russell Willis 18, Dermott Avenue, Comber, Newtownards, Co. Down, N.I.

Name Issue 6

Address (not for publication)

Postcode

Date

Tel.

Tick one box to show required section heading

For sale ☐

Wanted ☐

Personal ☐

Fanzines ☐

Use one space for each word. Only the words in this section will be printed.

Return with your cheque to:
Reader Ads,
Amiga Shopper,
30 Monmouth
Street,
Bath,
Avon BA1 2BW

Unfortunately we cannot guarantee insertion in a particular issue.

I have read and understood the conditions for the inclusion of my ad.

Signature

COMMODORE
HARDWARE

A500.....Options from	314.99
A500 1Mb Cartoon Classics	379.99
A500 1Mb Screen Gems	Call
A500 First Steps	459.99
A1500.....Options from	669.99
A3000 16MHz + 40Mb HD	2099.99
A3000 25MHz + 40Mb HD	2509.99
A3000 25MHz +	
105Mb HD	9994.99
A1084S Colour Monitor	254.99
A1950 Multisync	439.99
A590.....Options from	999.99
A1011 1Mb 3.5" Drive	79.99
A501 Ram Expansion/Clock	44.99
A520 TV Modulator	24.99

HARDWARE/
PERIPHERALS

Philips 8833 Mdl	244.99
Citizen 120D +	131.99
Citizen 194D	194.99
Citizen Swift 9	187.99
Citizen Swift 24	284.99
Star 9/24 Colour Kit	34.99
Star LC-10	141.99
Star LC94-10	199.99
Star LC94-200	214.99
Star LC94-200	239.99
Star LC24-200 Colour	299.99
Cumana 1Mb 3.5" Drive	69.99
Rocetec 1Mb 3.5" Drive	59.99
Supra 52Mb HD 1/2/4/8Mb Ram	Call
M501s 0.5Mb Ram Exp/Clock	34.99
Supra 1/2/4/8Mb Ram Exp	Call
AT Once	179.99
Hitachi Camera & Lens	924.99
Digiview	99.99
Vidi Amiga + Vidi Chrome	114.99
Vidi RGB Splitter	69.99
Vidi Colour Solution	159.99
Golden Image Scanner	179.99
Minigen	102.99
Genlock + Home Titler	139.99
Linnet Modem	161.99
Supra 2400 Modem	199.99
AMAS	71.99
Audio Engineer Plus	179.99
Mastersound	29.99

Perfect Sound	49.99
Soundmaster	109.99
Golden Image Mouse	19.99
Contriver Trackball	99.99
Neksha Mouse	24.99
Universal Printer Stand	6.99
Centronics Printer Cable	4.99
RS232 Cable	9.99
Scart Cable	11.99
3.5" 40 Capacity Box	4.99
3.5" 80 Capacity Box	6.99
10 x Sony Bulk 3.5"	5.99
50 x Sony Bulk 3.5"	24.99
100 x Sony Bulk 3.5"	44.99

BOOKS

Adv. Sys. Prog. Gde Amiga	32.45
Amiga Applications	16.95
Amiga Assembly Lang. Prog	14.45
Amiga C for Advanced Prog	32.45
Amiga C for Beginners	18.45
Amiga DOS	14.95
Amiga DOS Inside & Out	18.45
Amiga DOS Ref Guide 3rd Ed	20.45
Amiga Desktop Video	18.45
* Disk Drives Inside & Out	27.95
Amiga for Beginners	12.95
* Graphics Inside & Out	32.45
Amiga Hardware Ref. Man	99.95
Amiga Machine Language	14.95
* Printers Inside & Out	32.95
Amiga Prog Handbook Vol 1	24.95
Amiga Prog Handbook Vol 2	23.95
Amiga Prog Gde - Compute	17.45
Amiga Prog Gde - Weber	20.45
* ROM Kernel Man Autodoc	29.95
* ROM Kernel Man Libraries	31.95
Amiga System Prog Gde	39.95
Amiga World Amiga DOS 2	23.45
Becoming an Amiga Artist	18.45
Best Amiga Tricks and Tips	27.45
Computes 1st Book of Amiga	16.95
Computes 2nd Book of Amiga	16.95
Inside Amiga Graphics	16.95

Learning C -Prog Graphics	19.95
Making Music on the Amiga	32.95
Mapping the Amiga	20.95
Master Amiga DOS 2 Vol 1	21.95
Master Amiga DOS 2 Vol. 2	17.95
* Indicates Amiga in title	
68000 Assembly Lang Prog	21.95
Programming the 68000	23.95
Teach Yourself 68000	8.95
40 Great Flight Sims	13.95
40 More Great Flight Sims	14.95
F-19 Stealth Air Combat	11.95
Falcon Air Combat	11.95
Flight Sim Adventures	12.95
Flight Sim Odyssey	14.95
Flying On Instruments	13.95
Gunship Academy	14.95
Learn to Fly flight Sim	14.95
Sub Commander	12.95
Take Off Flight Sim	15.45
Turn & Burn Gde to Falcon	11.95
Up & Run Flight Sim	8.95

WORD PROCESSORS/
TEXT EDITORS

Excellence 2	99.95
Kindwords 2	36.95
Pen Pal	62.95
Protext V5	102.95
Pro Write V3.1	102.95
Quickwrite	39.95
Scribble Platinum	42.95
Transwrite	29.95
Turbo Text	49.95
Word Perfect	192.95
Wordworth	89.95

DESKTOP PUBLISHING

Gold Disk Type	each 31.95
Outline Fonts	99.95
Pagesetter II	46.95
Pagesetter V2.1	144.95
Proclips	21.95
Professional Page V2	189.95

DATABASES

K-Data	37.95
Prodata	55.95
Superbase Personal	26.95
Superbase Personal 2	64.95
Superbase Professional	164.95
Superbase Professional 4	259.95

SPREADSHEETS

Advantage	76.95
DG Calc	27.95
Maxiplan Plus	51.95
Superplan	64.95

ACCOUNTS

Cashbook Combo	54.95
Cashbook Controller	41.95
Final Accounts	97.95
Home Accounts	21.95
Personal Finance Manager	22.95
System 3	41.95

UTILITIES

Cross DOS	21.95
Diskmaster 2	49.95
GB Route	27.95
K-Comm 2	37.95
Quarterback	39.95
Quarterback Tools	59.95
X-Copy Professional	36.95

ASSEMBLERS/
COMPILERS/
LANGUAGES

3D Construction Set	39.95
AMOS	34.95
AMOS 3D	24.99

AMOS Compiler	21.95
Devpac 3	Call
GFA Basic V3.5 Compiler	22.95
GFA Basic V3.5 Interpreter	39.95
Hisoft Basic 2	Call
Hisoft Extend	14.95
K-Seka Assembler	37.95
SAS (Lattice) C V5.01	174.95

AUDIO/MUSIC

Audiomaster III	46.95
Audition 4	49.95
Bars & Pipes Prof	222.95
Dr T's Copyist App	76.95
Dr T's Copyist DTP	201.95
Dr T's KCS	169.95
Dr T's KCS Level II	249.95
Dr T's MRS	51.95
Dr T's Tiger Cub	84.95
Music X	99.95
Quartet	36.95
Sequencer One	74.95

EFFECTS/TITLING/
PRESENTATION

Big Alt Scroller	42.95
Broadcast Titler 2	189.95
Broadcast Font Enhancer	109.95
Home Titler	34.95
HyperBook	54.95
Pro Titler	126.95
Scala	189.95
Title Page	134.95
TV Show v2	56.95
TV Text Professional	94.95
Video Effects 3D	132.95
Video Titler 3D	78.95

3D/ANIMATION
CAD/GRAPHICS

Amiga Vision	95.95
Art Department	55.95

Art Department Pro	134.95
Deluxe Paint III	59.95
Deluxe Print II	35.95
Deluxe Video III/Photolab	74.95
Design Works	84.95
Director 2	97.95
Disney Animation Studio	84.95
Draw 4D	149.95
Imagine	179.95
Pixmate	38.95
Professional Draw V2	99.95
Real 3D Beginners	197.95
Real 3D Pro Turbo	359.95
Spectracolour	58.95

SIMULATIONS

F-15 Strike Eagle II	24.99
F16 Combat Pilot	17.50
F19 Stealth Fighter	21.50
Flight Simulator II	24.99
Gunship	17.50
Proflight	28.99

EDUCATIONAL

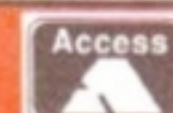
Better Maths 12-16 yrs	19.95
Better Spelling Over 8	19.95
Fun School 2 Under 6	14.95
Fun School 2 6-8	14.95
Fun School 2 Over 8	14.95
Fun School 3 Under 5	17.95
Fun School 3 5-7	17.95
Fun School 3 Over 7	17.95
Kids Type	21.95
Magic Maths 4-8 yrs	19.95
Maths Mania 8-12 yrs	19.95
M Beacon Teaches Typing	22.95
Mega Maths A-Level	20.95
Micro English GCSE	20.95
Micro French GCSE	20.95
Micro Maths GCSE	20.95
Primary Maths 3-12 yrs	20.95
Prof Looks at Words	19.95
Prof Makes Sentences	19.95
Prof Plays a New Game	19.95
Spell Book 4-9	14.95
The Three Bears	19.95
Things to do with Numbers	14.95
Things to do with Words	14.95



Please make cheques/postal orders payable to SOFTMACHINE. All items subject to availability.
All prices include V.A.T. & UK Delivery. All prices subject to change without notice. E.&O.E.

SOFTMACHINE

Dept. AMS 10, 20 Bridge House, Bridge Street, Sunderland SR1 1TE. Tel: 091 510 2666/2777 Fax: 091 564 1960



3 1/2" DISKS BENCHMARK BRAND DSDD

25	50	100
£17.00	£29.00	£41.00

200	500	1000
£75.00	£163.00	£309.00

3 1/2" DISKS UNBRANDED DSDD

25	50	100
£11.00	£18.50	£33.50

200	500	1000
£63.50	£153.50	£303.50

SPECIAL OFFER 3 1/2" DS/DD EX-WESTERN DIGITAL VGA DRIVERS ALL BRAND NEW BUT HAVE BEEN FORMATTED & LABELLED. AVAILABLE IN BLACK OR IBM GREY PRICE £25.00 PER 100 INC NEW LABEL. ONLY 10,000 AVAILABLE. DON'T MISS THIS ONE. FIRST COME FIRST SERVED

DISK STORAGE BOXES

3 1/2" 10 capacity (5 boxes)	£4.50
3 1/2" 10 capacity* (5 boxes)	£3.00
3 1/2" 50 capacity lockable	£3.70
3 1/2" 100 capacity lockable	£4.70
3 1/2" 240 capacity stackable	£15.00

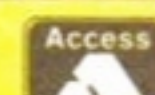
*brand new, but labelled "Olympia"

THESE PRICES ONLY IF BOUGHT WITH DISKS

M C S

ALL PRICES INCLUDE VAT & P&P UK ORDERS ONLY

Cheques and
Postal Orders to:



24 HOUR ORDERLINE 0597 87784

Manor Court Supplies Ltd

Telephone: 0597 87 792 Fax No: 0597 87 416
Dept AS10, Glen Celyn House, Penybont, Llandrindod Wells, Powys, LD1 5SY

EDUCATION AND GOVERNMENT ORDERS WELCOME

ALL DISKS 100% CERTIFIED ERROR FREE

Live and learn

Last month we had a glimpse at the educational titles available from the public domain libraries. Since then another crop has flooded in, but the commercial sector is strangely silent – one new title from America, one from Britain and one budget re-release. Where are all the home-grown producers? Have they gone over to embracing the PD, shareware and licenceware ethos?

For customers like us this wouldn't be a bad thing at all – after

Once again our education correspondent, Pat Winstanley, brings you details of the best in educational software

all, who wants to pay inflated prices – but surely it's time some of the PC and BBC titles were converted to the Amiga so that we can use them at home. One type of program used

extensively in schools is strangely missing from the home-computer range – text/graphic adventures. Are there any budding programmers out there who fancy a challenge?

This *Big Top* juggler needs the matching card to make a balanced exit from the ring.

With languages such as AMOS and HatrackII available, the opportunities are wide open. Many children tire quickly of the 'guess the spelling' or 'do the sum' type of offering which is becoming universal. With a limited number of arcade approaches, educational games are rapidly approaching the 'oh no, not another clone' tedium of shoot-em-ups. Come on programmers, let's see some variety – who knows, you might enjoy the change too!

BIG TOP FUN

Infant/Junior

LPD29 (1Mb) £3.50

Len Tucker's at it again with two new products this month. This one has a circus setting (if you hadn't already guessed) and consists of four tasks for infant/junior children.

Word Balance has a monocyclist entering the ring with a card in one hand. Also in the ring are a range of other cards. Depending upon the skill level chosen, the child is asked either to choose a word to match the picture or a picture to match a word.

If speech is selected, the child's choice of card is spoken by the computer – which both spells it out and pronounces the complete word. This slows the game down



"Don't know what to buy? Read on for news of the latest educational software and what features to look for."

Pat Winstanley

somewhat, but with youngsters it's no real problem. The only difficulty is that the computer does not give the phonetic letter sounds but their names – confusing for little ones.

Matchplay is the next offering, and is a simple memory game with different cards to be turned over to make pairs. Different levels see either pictures or words on the cards. Again, speech is available, with the computer sounding out the spelling of either the word or the word represented by the picture.

Seal-a-Grams are, as the name suggests, anagrams. A nice twist is that the screen shows several seals juggling balls on their noses. Each ball contains a letter and the child must make a word by swapping balls amongst the seals until the correct

continued on page 115

BEGINNERS

There's a great deal of good

educational software about on the Amiga, so which should you choose for your brood? Before spending a small fortune, think about what your child needs, what he or she can handle in the way of controls, and estimate how much computer and game supervision will be needed.

Small children can usually handle a joystick or mouse without difficulty, but pre-readers in particular may well be baffled by the keyboard. Better-quality games will have a choice of control whenever possible, including an alternative qwerty or number pad layout on the screen to be used in conjunction with the mouse. Older children – particularly those comfortable with the keyboard – usually find direct typing is quicker and easier in spelling games.

While older children can safely be left to handle loading, saving and swapping disks, younger ones need a good deal of supervision at first. Games which require lots of

BEGINNERS START HERE

BEGINNERS

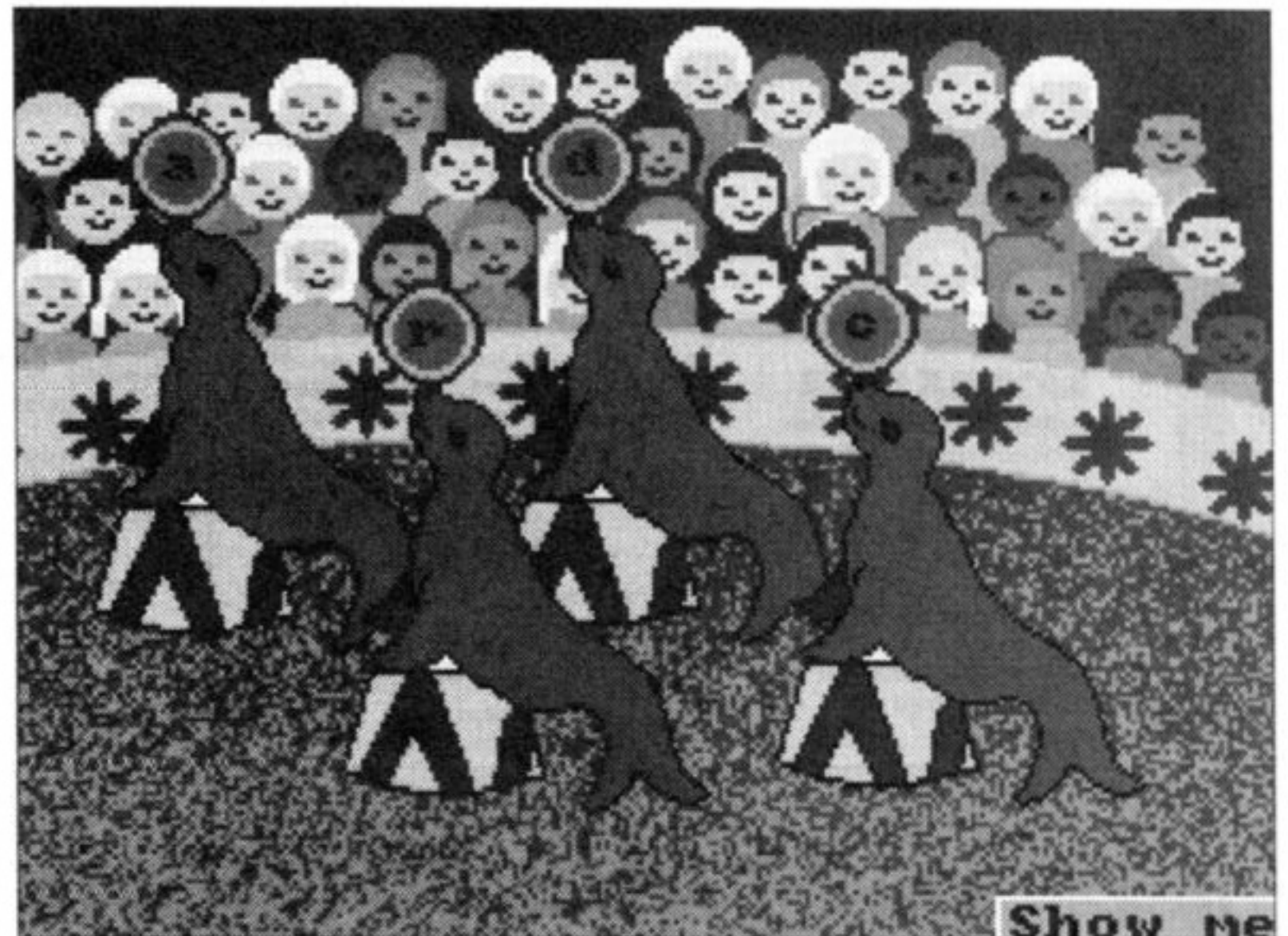
disk swapping can be very

frustrating for parents, especially when the actual program is extremely simple to operate and the child could theoretically handle it alone.

Spelling games in particular usually need parental help for the child to get the most from them. Some of the better ones include on-screen help (giving clues, refusing to accept wrong answers and so on) which gives the child independence and hence pride in their achievements.

Many programs include a progress recorder. These are useful for monitoring a child's progress both by parents and by the children themselves. Some allow several children to keep session-by-session records individually on the same disk. Be wary of permanent records, though, as this means saving to disk, and more swapping.

Where possible choose software which can be backed up so that the original disk can be put away in case of mishaps.



Circus seals play ball with each other according to which pair are clicked on. If you're stuck, clicking on SHOW ME reveals a clue to the *Big Top* problem.

- You do not have to join our club to buy software
- 1000's of extremely satisfied customers
- Exclusive titles from our very own programmers
- 14 Day Money Back Guarantee On Everything
- Access, Mastercard and Visa Accepted
- When buying educational tools for your child's computer consult the specialists and don't waste your money. Get our free catalogue to discover all the advantages of our club.

**EDUCATIONAL
SOFTWARE
CLUB** **ESC**

We
Have Over 70 Top Class
Educational Programs For
The Amiga, PC & Atari ST.
All Ages Covered
Contact Us Now For Your
Free Fully Descriptive
Catalogue.

☎ **0702 600557**

E.S.C. Dept. AF, 32A Southchurch Road,
Southend-on-Sea, Essex SS1 2ND.



*For the best in
Educational Software*

Subjects	
French, Spanish	
German, Italian	
Sciences, History	
Geography	
English Words	
Spelling	
Arithmetic	
Football, Sport	
First Aid	
General Knowledge	
England, Scotland	
Natural History	

Kosmos are specialist
producers of Educational
Software designed to help
you enjoy learning from
your computer. Versions
are available for most
popular home & business
computers. Many of our
programs even allow you to
add your own lesson
material.

Write or telephone for a
FREE 20-page BROCHURE
of our Educational & Leisure
software

Please state your computer type

Kosmos Software Ltd, FREEPOST (no stamp needed in UK)
DUNSTABLE, Beds. LU5 6BR
Telephone 05255 3942 or 5406



Kosmos
SOFTWARE

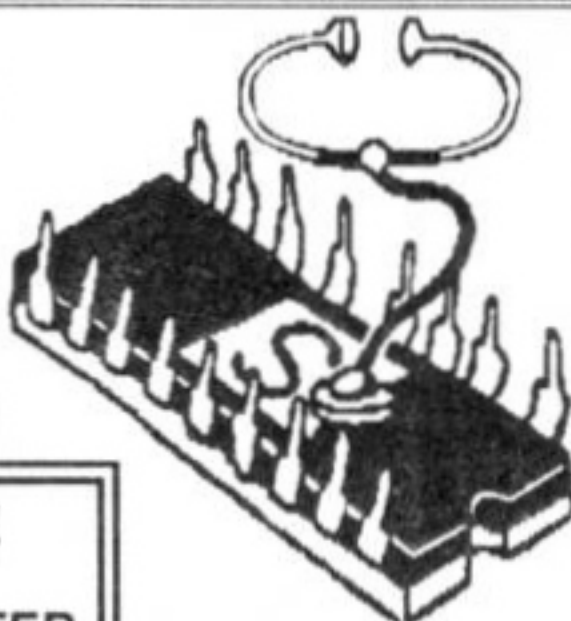


TROUBLESOME FAULTY AMIGA?!!

Quality Amiga Repairs

From only **£23.50** inc. return

* FOR SPEED, FREE POSTAGE
+ PEACE OF MIND
CALL FOR OUR FIXED PRICE OFFER
ANYWHERE IN THE UK!



* Trade
enquiries
welcome

Ring Repairs Hotline
STAR ASSOC. Computers
Wembley 081 961 5366



NEW AGE COMPUTING

AMIGA DEALS

Where stated our exclusive New Age pack
contains, on top of the standard packs:

- ★ A free mouse mat
- ★ A disk head cleaning kit
- ★ 15 Professionally Packed Public Domain
Disks
- ★ A complimentary issue of Computer LYNX
magazine, giving you that extra insight in
the new world of AMIGA computing!

BASE A500 512k New Age Pack	£319.95
BASE A500 512k BARE	£309.95
BASE A500 1 Meg + New Age Pack	£344.95
BASE A500 1 Meg BARE	£334.95
A500 1 Meg Screen Gems + Pack	£365.00
A500 1 Meg Screen Gems	£355.00
A500 1 Meg Cartoon Classics + Pack	£375.00
A1500 BASE Machine + New Age Pack	£675.00
A1500/1084S Stereo Monitor + Pack	£919.95

3.5" BULK DISKS

Benchmark branded bulk disks
with full replacement guarantee

25 disks with labels	£16.00
50 disks with labels	£28.00
100 disks with labels	£40.00
200 disks with labels	£74.00
500 disks with labels	£162.00
High density disks (each) minimum 50	£0.95

★★ Order 500 disks and get
25 extra free ★★

Roll of 1000 labels	£6.99
---------------------	-------

HARD DRIVE OPTIONS

A1500/2000

GVP or XETEC SCSI HD controller with 8
meg RAM upgrade option on board.
NEXUS cards out now - add just £20 to total!
Card (0k) - please state GVP/Xetec £199.99
Card + 52 Meg hard drive.....£429.95
Card + 105 Meg hard drive.....£581.95
Card + 170 Meg hard drive.....£787.95

2 Megabyte RAM (when bought with drive)	£79.00
4 Megabyte RAM (when bought with drive)	£157.50
8 Megabyte RAM (when bought with drive)	£314.00

A500

Commodore A590 controller and 2 meg ram
upgrade option on board
A590 + 20 Meg drive
(standard bundle).....£285.95
A590 + 52 Meg Hard drive.....£489.95
A590 + 105 Meg Hard drive.....£645.95
A590 + 170 meg Hard drive.....£855.95
2 Megabyte RAM (when bought
with drive).....£70.00

All drives and/or RAM fitted by us ready
for you to just plug in and go! If you need
more storage, call for a quote.

COMPUTER LYNX MAGAZINE

Our exclusive action packed magazine ON A
DISK! Demos, news, interviews, reviews and
much more! WE CAN'T EXPLAIN IT ALL
HERE! SEND FOR A TASTER!

Computer LYNX (latest issue)	£1.50
14 issue subscription - including P&P	£22.00

PROFESSIONAL PUBLIC DOMAIN

As featured in NEW COMPUTER
EXPRESS!!
These are more than just standard disks,
they come with proper cases and
inlay/documentation
**FULL LIST OF TITLES IN OUR FREE
CATALOGUE**

1 disk:	
Noiseplayer 4 with documentation	£1.50
Ice megademo	£1.50
Pixeled Pleasures (Turrican II remix)	£1.50
Silence of the Demos (various demos)	£1.50
Mystical Tunes (Classic CHIP music)	£1.50
Substance - Quartex's first demo!	£1.50

2 disk:	
Blues House - Thrust game & music	£2.50
Virtual World/Alfa Omega Twin Pack	£2.50

3.5" DISK STORAGE

10 Capacity Lockable Box	£4.50
80 Capacity Lockable Box	£5.00
POSSO 150 capacity drawer (stackable)	£16.00
BANX 90 capacity drawer (stackable)	£8.00

★ Order any 5 boxes and get
20 disks FREE ★

A500 0.5 MEG MEMORY UPGRADE

Expansions without a clock are just
a waste of time!!
FREE ONE MEG DEMO! -
"ENIGMA" by Phenomena
A500 Memory Upgrade with
clock + disk.....£25.00

MISCELLANEOUS

Naksha Mouse + Operation Stealth (280dpi)	£23.00
Vinyl mouse mats	£1.99
Foam mouse mats	£2.99
Turbo 68000 replacement chip (7/14Mhz)	£39.00
- NB: Chip requires Revision 5.2 Amiga/above	
Thingii III A4 copy holders	£3.99
Fastrack II disk holders	£1.99
Plastic Library Cases (10 disks)	£0.99
Universal Printer Stands	£6.99
3.5" disk head cleaning kit	£1.99
Mountain Breeze Computer Air ioniser	£25.00

PRINTER RIBBONS

Star LC-10	£3.00
Star LC24-10/24-200	£4.50
Epson MX/FX 80/800	£3.50
Epson LX80/86	£3.00
Panasonic KXP 1124	£4.75
Panasonic KXP 1080/1081/1180	£4.50

★ Call for your printer now!! ★

DUST COVERS

Amiga 500	£4.50
Star LC-10	£5.50
Monitor (Philips or other 14")	£6.50

DISK DRIVES

All drives with free issue of Computer LYNX
External Slim 3.5" Drive -
I/Port/Switch.....£55.00
Internal A500 replacement drive.....£59.95
Internal 1500/2000 2nd drive/
replacement.....£65.00

JOYSTICKS

Zipstick + Autofire	£12.50
Competition Pro	£10.50

Phone for details/prices on
other joysticks

SOFTWARE

We can supply nearly all available
software

We can virtually always get software not in
stock within 24 hours if
ordered before 3pm.

We will also match prices with our
competition and in most cases **BEAT**
those quoted by others!
So if you want the best price
you **MUST** call.

**WE ALSO SELL TELEPHONES
& FAX MACHINES**

★ SEND FOR YOUR FREE
CATALOGUE NOW! ★

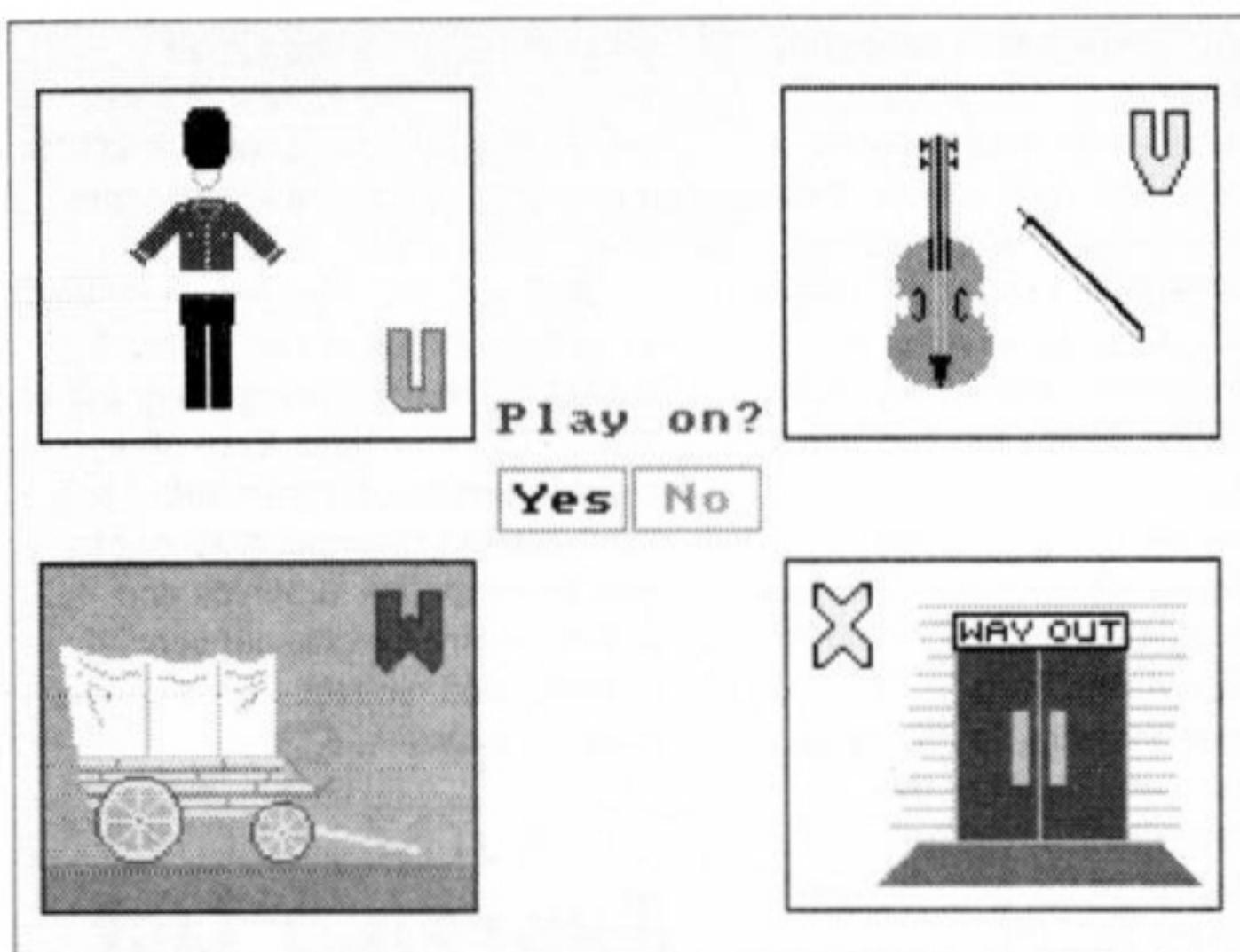
Cheque's/Postal orders payable to "NEW AGE COMPUTING". All prices include V.A.T

POSTAGE & PACKING. Please add 50p for orders under £2,
£1.50 orders up to £10. £2 orders above £10.
Also add £5 over £150 insurance

PRICE MATCH! If you see any item elsewhere
cheaper, we'll try to **BEAT** the price!

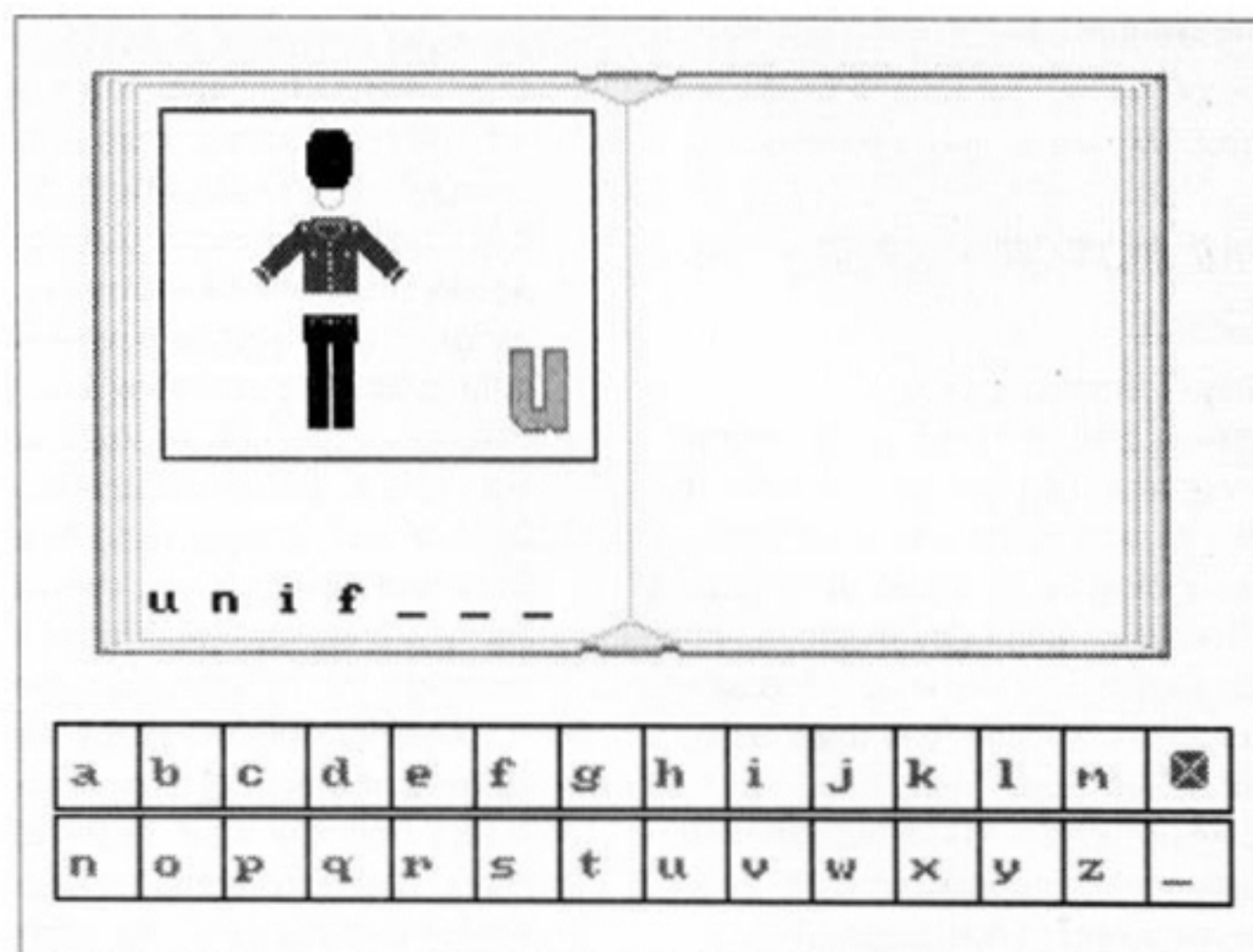
New Age Computing, Dept AP, 187 Perrysfield Road, Cheshunt, Herts, EN8 0TL

Telephone (0992) 465366 / (0831) 820097. Fax: (0992) 450009



Nice, clear pictures and easy-to-guess words help children enjoy *Spell Book*.

In *Spell Book*, the words and pictures build up a book of ABC by clicking letters with the mouse.



continued from page 113

letter order is reached. On-screen help is available in the form of a picture depicting the correct word, and as with the others speech is available if required.

Balloon Burst gives the kids a chance to test their reflexes along with their spelling. The scene shows a line of balloons, each containing a letter, a picture of the required word and a clown walking back and forth across the ring. The clown has a water pistol which pops any balloon he is directly beneath when the mouse button is pressed. If the letter is correct for the word required (not necessarily in the correct order) the word begins to be built up on the ground. If it is incorrect the letter simply disappears. One difficulty with the approach used is that simply by firing randomly the child can make a word. I'd have liked to see some sort of penalty (or "cheat") message to dissuade the child from making use of that method.

Overall the disk contains a well thought-out variety of games, none of

them too demanding. All of them have excellent graphics, animation and speech (except for the lack of phonetics). There is circus music playing during the games, adding greatly to the atmosphere – play really feels as though it's taking place in the ring. Suitable for all primary age children, it's a snip at the price!

CYAD

Junior/Senior
LPD26 (1Mb) £3.50

James Newcome, a new name to me, describes himself as "living as an unhappy single with an apple strudel". But don't worry about this minor eccentricity, it hasn't deterred him from using AMOS to produce a superb game of logic.

CYAD is an acronym for Controllable Yellow Automated Device – but controllable is the last thing it appears to be. Once set in motion by the joystick it continues inexorably until it hits either a hazard or a solid wall. The idea of the puzzle is to send CYAD off in such

directions that it will collect precious stones on the screen. Once all of the stones have been collected an exit appears – then you have the problem of reaching safety with limited steering power.

As an exercise in logic and frustration it is one of the best programs for both children and adults that I have seen for some time. Fortunately the author has included both save/load features and a tutorial mode. Unfortunately he also threatens to unleash son of CYAD, CYADONIA on an unsuspecting world. The follow-up is said to be the same game with more syllables in the title; can I stand any more? Yes – definitely. Well worth a look if the kids (or you) like brain teasers with a bit of action.

FLOWER POWER

Infant/Junior
LPD27 (1Mb) £3.50

Although I whinged in the introduction about the lack of educational adventure games, this one comes close to that ideal. The scenario involves your attempts to grow flowers for the local show while discouraging various bugs and beasties which are out to eat or otherwise destroy your efforts. Successful gardeners in the real world must carry out a variety of tasks in a specific order, and this game needs the same criteria for successful progression.

Initially you are presented with a packet of seeds, a spade and a watering can. You must dig a plot of ground, plant the seeds, water the seedlings then harvest it when ready – sounds easy, doesn't it? Unfortunately a variety of pests from dogs to bees will eat your seedlings if they get close enough. Being a kind soul, you don't resort to pesticides or other environmentally unfriendly products, but rely instead on scaring the blighters with karate-style war cries.

On each level you have a limited number of seeds and a target

number of harvested flowers to reach. You also have a limited amount of energy which is depleted when a beastie comes into contact. Between guarding your plots and frantically refilling the watering can, both kids and adults will find that fun, challenge and logical thought need to go hand in hand for success. All the action is controlled by the joystick and is simple enough for quite young children. A lovely (though probably unintentional) touch is that the gardener appears to be watering the plants without the aid of a watering can...

SPELL BOOK (4-9)

Infant/Junior

This is a budget-priced re-release from Soft Stuff, combining two packs which have been around for quite some years. Although the basic program has not changed, the whole package has been streamlined to simplify operation.

Each letter of the alphabet has a picture associated with it, and the child's task is to work out the spelling of the object pictured. The alphabet is split into groups of four letters, and each group can be chosen at random, allowing the child to work through in any order. Several levels are available, each with a different set of pictures, making the program suitable for infants and juniors alike.

My children used this program on the Atari ST several years ago (they were at pre-school and reception ages) and they thoroughly enjoyed it. This new version has proved just as much of a hit, despite their improved reading ability, which just goes to show its versatility across age groups.

Letters for words are selected by the mouse from an alphabet shown on the screen – it's a slow method, but one ideal for children unfamiliar with the qwerty keyboard. The letters on the screen are displayed in lower case to match the target age groups.

continued on page 116

RATINGS

	Educational Value	Ease of Use	Flexibility	Addiction	Overall Value
CYAD	3	4	2	5	3
Robot Spell	5	3	4	2	3
Big Top Fun	5	5	3	3	4
Flower Power	4	3	2	5	4
Early Maths	5	2	3	4	4
Spellicopter	5	3	2	3	3
Spell Book	4	3	2	4	3

Successful educational programs, especially those intended for children, need to combine fun with learning. A good educational rating combined with addictiveness shows a well-balanced and valuable resource. Other ratings shown here affect the user-friendliness of the product, reflecting the hassle-factor involved.

continued from page 115

At the meagre price of £7.99 it's well worth adding to your collection.

MR ROBOT'S SPEAK 'N SPELL

Infant/Junior/Senior

One by one, American educational programs are beginning to filter into this country. This one, from Brain Technologies, is aimed at children of all abilities and ages from kindergarten (early infant) through to college, and describes itself as a vocabulary expander.

The program is in two sections. Early levels (approximately equivalent to our infant school ages) flash a picture on the screen then ask the child to type in the spelling (either with the keyboard or by mouse with an on-screen keyboard). Incorrect letters may not be entered – the computer (in the guise of a robot, of which more later) tells the child to try a different letter. Later levels (approximately junior school ages) have crosswords to be filled in.

Each section comprises a tutor and a quiz mode. The tutor mode presents the word on-screen, while the quiz expects the child to remember or work out the correct spelling. Tutor and quiz mode go hand in hand, the same words and pictures being used for a particular level in both cases. My seven and eight year-olds found this a great help – especially when they encountered unfamiliar words and spellings due to the Americanisms.

The words themselves range from easy-peasy such as 'cat' through to horrible specimens like 'palanquin' and 'ocarina'. I thought my vocabulary was pretty good but had to look up both the latter words (they mean a litter and a musical toy respectively, in case you're curious).

With such a title you might be forgiven for expecting robots to play a major part in the presentation. Well, they do – but it isn't good. Anyone who has seen or heard *Hitchhiker's Guide to the Galaxy* will recall Marvin, the paranoid android. This program features Marvin's brother and sister, and they're even more depressing to listen to than Marvin was. Both the children and I found ourselves sinking lower and lower as the game progressed – hardly conducive to maintaining interest. It isn't just that the speech is very slow; most of the phrases seem to drop in pitch at the end rather than rising to enthuse the player with determination.

One major difficulty with American programs aimed at teaching English is the problem of different spellings and meanings between the two sides of the Atlantic. Thus, several words in the

list have American spellings; tire (tyre), pickax (pickaxe), vise (vice), for example, while others are completely different words; faucet (tap), cookie (biscuit), elevator (lift). Adults who have been widely exposed to American novels will have little difficulty translating but children, especially younger ones, are likely to find much confusion. Despite early exposure to American films and game shows, everyday items are seldom mentioned and therefore the differences unknown.

Another problem is the American method of teaching upper-case letters from the start. In Britain lower-case characters are used almost exclusively in the infant school, but in this game upper-case is used on-screen even at the infant age levels.

With over 1,000 words and associated pictures there's plenty of scope, but the presentation is so tedious that only the most tenacious child will remain interested for long, and for older children/adults the program runs far too slowly between words, yet far too fast during a word. The program also has a habit of crashing – which is unacceptable in PD, let alone full-price products.

EARLY MATHS

Infant/Junior

Kids love programs with cute characters, a phenomenon used to good effect in this collection of maths games. Dizzy Lizzy is a blue blob, while her arch enemy is a red blob, Meany. Throughout the range of tasks, the child has to help Lizzy outwit Meany by answering various maths problems.

The disk contains 12 games, ranging from simple counting through to addition, subtraction, division, multiplication, shapes and logic. Also covered are 'greater than', 'equal to' and 'less than'.

Shape recognition appears in a simple 'Snap'-style card game (with Meany wild cards to add a bit of spice). Another shape game is in the style of *Space Invaders* mixed up

with a bit of *Tetris*, with a spaceship at the top of the screen dropping different shapes on to the shaped bases below. The child has to check whether the falling shape matches the base shape and shoot out those which don't. A fair bit of reflex is called for which is ideal for joystick jockeys – even adults can find this one taxing.

Simple arithmetic is found in several games. In each the child has to answer a problem to allow Lizzy to achieve something. Thus in one, each correct answer gives a jigsaw piece to put back together the picture Meany has vandalised.

While most of the games follow well-known themes, the implementation is excellent and all the testers maintained high interest levels. My only real gripe is that after each attempt at a task (of around ten questions) the program puts the child back to the main menu rather than offering another go at the same game. Since this takes quite a while, and kids take a while to learn the gameplay methods, it tends to be rather frustrating. However, that minor design point apart, I can heartily recommend this offering for any family with primary-aged children. It is flexible, fun, and above all excellent value.

SPELLICOPTER

Infant/Junior

Spelling games tend to be the most boring around, both for children and teachers. *Spellicopter* is one of the better ones, and uses animation effectively to pull a tedious task out of obscurity. Although simple in concept, its animation adds greatly to the child's enjoyment, and its flexibility of control means that little intervention is needed from mum and dad.

Basically the game is about spelling words by means of either joystick or cursor keys. Using the controls, a helicopter is manipulated along the alphabet which is strung out and scrolling across the screen. When the helicopter stops over a

letter the child makes a grab descend from the 'copter and pick up the letter. Another manoeuvre sends the 'copter to drop its load on the word line.

Although the controls are limited to 'get' and 'drop', there is still a feeling of the child being in control of the helicopter's flight. Even small children use the program with ease yet it doesn't bore the older ones with its simplicity. Graphics and animation are simple, but very colourful and realistic with a cartoon-style atmosphere. **AS**

SHOPPING LIST

Big Top Fun.....£3.50
Flower Power.....£3.50
CYAD.....£3.50

Available under an identical numbering/pricing system from all AMOS Licenceware distributors. See ads elsewhere in this issue for details.

Mr Robot's Speak 'n' Spell.....£25
(This is an approximate price – the final price is not yet set, but the game is available now – ring for details)

Available from HB Marketing
Unit 3, Poyle 14
Newlands Drive
Colnbrook
Slough SL3 0DX.
☎ 0753 686000

Early Learning Maths.....£19.95
Spellicopter.....£19.95

Available from ESP Software
32A Southchurch Road
Southend-on-Sea
Essex SS1 2ND.
☎ 0702 600557

Spell Book (4-9).....£7.99

Available from Soft Stuff
19 Quarry Hill Road
Tonbridge
Kent TN9 2RN
☎ 0732 351234

EDUCATIONAL CONTENT

	Maths	English	Science	Reflex	Logic	Fact	Revise
CYAD	N	N	N	Y	Y	N	N
Robot Spell	N	Y	N	N	N	N	Y
Big Top Fun	Y	Y	N	Y	N	N	N
Flower Power	N	N	Y	Y	Y	N	N
Early Maths	Y	N	N	N	N	N	Y
Spellicopter	N	Y	N	N	N	N	Y
Spell Book	N	Y	N	N	N	N	Y

GASTEINER

Trade and Educational
Orders Welcome

Technologies

Tel: +44 081-365 1151
Fax: +44 081-885 1953

Credit Cards
Welcome



Personal Callers
Welcome

Outstanding NEW products from Gasteiner Technologies

MEMORY MASTER



A half-length FastRAMN expansion with 4 MBIT technology upgradeable 2, 4, 6 & 8Mb. No additional Wait State in the Amiga 1500/2000 16 Bit-Bus-Technology. Includes RAMtest program and detailed manual.

£149

PRO-MONITORS

NEC 3D £499
QUADRA II 1480 £399
PHILIPS 8833 £229

ALF 3



High speed excellent performance. Hard disk delivered ready for use after plugging into a free A2000-Slot. Optional data transfer independent from processor & uses fully the Amiga-busbandwidth (16 Bit).

£299

OKTAGON 500



A really intelligent SCSI controller for the Amiga 500.

- Autoboot by FFS
- Automatic reading from SCSI devices
- Supports up to 7 SCSI devices
- Multi tasking capable
- Login and password security

ALL THIS FOR ONLY → £149

GASTEINER Unit 12 a Millmead Business Centre, Millmead Road, London N17 9QU

THE TRACK BALL



Switchable between Atari/Amiga with the third button 'Click & Hold' feature this must be the best value trackball at only

£29.95

ALFA DATA MOUSE



Best replacement mouse which includes a mouse holder & cutting pad.

For Only → £16.95

UK's LEADING TOP SELLING SCANNER



Outstanding quality, excellent value - this package includes a 100-400dpi scanner with dither options, plus the amazingly powerful TOUCH-UP software package which drives the scanner directly. Scanner includes viewing window & backlight for accurate scans. Scan either line-art or grey images up to 400dpi.

£149.00

GOLDEN IMAGE RC 2000 = 2Mb-8Mb

Populated for A1500 - A2000

2Mb → £149
4Mb → £219
6Mb → £POA
8Mb → £POA

GOLDEN IMAGE OPTICAL MOUSE



Amazing accuracy and reliability with the first optical mouse for the Amiga + ST

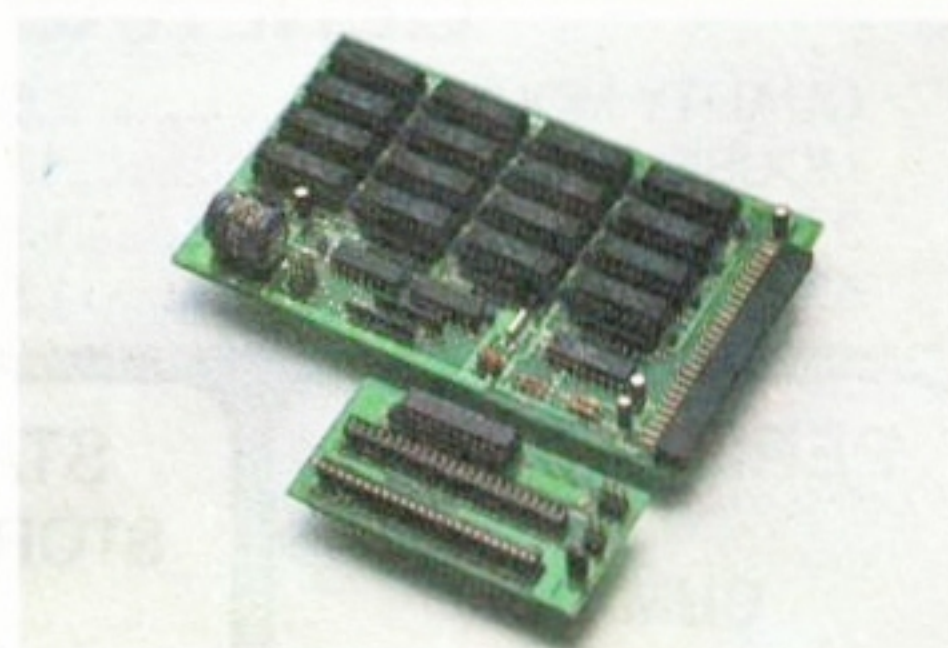
ALFA DATA TRACKBALL



Alfa Data Trackball. Excellent high performance trackball for Amiga and Atari ST. Operates from mouse or joystick port. Top quality construction and opto-mechanical design.

only for → £24.95

2Mb RAM CARD



- Fully populated board
- Plugs into trap door expansion and connects to gray chip. Populated RAM board with click

£34.95

Ram card 1/2 Mb → £59

Ram Card 2Mb → £99

512K RAM/CLOCK CARD

- 100% A500 compatible
- Battery Back-up Read time Clock on Board
- Support ON/OFF Switch to enable/disable expanded RAM.

Only → £29.95

AMAZING OFFERS ON 3.5" DSDD DISKS

25 DSDD 135 tpi	11.95
50 DSDD 135 tpi	21.95
75 DSDD 135 tpi	31.95
100 DSDD 135 tpi	37.95

ALL DISKS SUPPLIED WITH LABELS AND ARE 100% ERROR FREE 2 FOR 1 GUARANTEE

3.5" HIGH DENSITY DISKS

10.....	9.95
25.....	23.75
50.....	39.95
100.....	59.95

(ALL DISKS 100% ERROR FREE
INCLUDES LABELS)

5.25" DSDD DISKS

30.....	9.95
50.....	13.95
100.....	24.95
200.....	46.95

(ALL DISKS 100% ERROR FREE
INCLUDES ENV/LABELS)

5.25" DSHD DISKS

30.....	18.95
50.....	21.95
100.....	36.95
200.....	68.95

(ALL DISKS 100% ERROR FREE
INCLUDES ENV/LABELS)

DISK STORAGE BOXES

3.5" 100 CAPACITY.....	5.95
3.5" 80 CAPACITY.....	5.45
3.5" 50 CAPACITY.....	4.95
3.5" 40 CAPACITY.....	4.45
5.25" 100 CAPACITY.....	5.95
5.25" 50 CAPACITY.....	4.95

☆☆☆ OFFER ☆☆☆

DEDUCT £1.00 FROM THE
ABOVE BOX PRICES IF
PURCHASING A QUANTITY
OF DISKETTES
5.25" OR 3.5" 10 CAP BOXES
5 FOR 4.50
10 FOR 7.50

GENUINE SONY 3.5" DSDD BULK DISKETTES

25.....	12.45	200.....	79.95
50.....	22.95	500.....	179.95
100.....	41.95	1000.....	339.95

(ALL DISKS 100% ERROR FREE AND ARE SUPPLIED WITH LABELS)

RAINBOW DISKS

(RED, GREEN, YELLOW, ORANGE, BLACK, WHITE COLORS AND QTY'S OF YOUR CHOICE)

3.5" DSDD DISKS

25 DSDD.....	13.75
50 DSDD.....	26.45
100 DSDD.....	44.95
200 DSDD.....	84.95

(ALL DISKS 100% ERROR FREE AND ARE SUPPLIED WITH ENV/LABELS)

5.25" DSDD DISKS

25 DSDD.....	10.45
50 DSDD.....	18.95
100 DSDD.....	34.95
200 DSDD.....	67.95

GENERAL ACCESSORIES

QUALITY MOUSE MAT.....	2.50	ATARI DUST COVER.....	3.95
MOUSE POCKETS.....	1.50	AMIGA DUST COVER.....	3.95
3.5" CLEANING KIT.....	1.95	2 PIECE PRINTER STAND.....	5.95
5.25" CLEANING KIT.....	1.95	MONITOR STAND.....	12.95

PERIPHERALS

CUMANA

EXTERNAL DRIVE
ONLY **59.95**

AMIGA 512K RAM
EXPANSION BOARD
WITH CLOCK

ONLY **29.95**

WITHOUT CLOCK

ONLY **26.95**

DATEL

ACTION REPLAY II
ONLY **57.95**

STACKABLE STORAGE BOXES

BANX BOX

HOLDS 90 3.5" DISKS
CAN BE STACKED
HORIZONTALLY AND VERTICALLY

1.....	9.00
3+.....	8.50
5+.....	8.00

POSSO BOX

HOLDS 150 3.5" OR 70 5.25" DISKS
CAN BE STACKED
HORIZONTALLY AND VERTICALLY

ONLY **15.95**

JOYSTICKS

QS138 MAVERICK	13.95
SPEEDKING STD	9.95
SPEEDKING A/F	10.95
NAVIGATOR	13.95
ZIPSTICK STD	11.95
ZIPSTICK A/F	13.95
COMP PRO. STD	11.95
COMP PRO. A/F	13.95
MANTA RAY STD	12.95
MANTA RAY A/F	14.95
STING RAY STD	14.95
STING RAY A/F	15.95
QS131 APACHE	6.95
QS135 PYTHON 1	9.95

RIBBONS

WE STOCK A RANGE
OF RIBBONS FOR
MANY MACHINES

PHONE FOR A QUOTE

HOW TO ORDER

BY PHONE

0782 208228

BY FAX

0782 281506

BY POST

MEDIA DIRECT

COMPUTER SUPPLIES LTD

UNIT 3

RAILWAY ENT. CENTRE

SHELTON NEW ROAD

STOKE ON TRENT

ST4 7SH.

ALL PRICES INCLUDE VAT

3.35 P & P PER ORDER

£9.00 NEXT DAY

(UK MAINLAND ONLY)

REMEMBER !!!

WE ONLY SELL HIGH QUALITY
DISKETTES. OUR 3.5" DISKETTES
ARE MADE BY K.A.O AND OUR
5.25" DISKETTES ARE MADE BY
ATHANA. WE DO NOT SELL SUB
STANDARD DISKETTES FROM
THE FAR EAST.

THIS MONTHS SPECIALS

☆☆ OFFER 1 ☆☆

200 3.5" DSDD +
2 100 CAP BOXES
~~78.95~~ **67.95**

☆☆ OFFER 2 ☆☆

NAKSHA MOUSE+
MAT AND POCKET
~~34.95~~ **22.95**

☆☆ OFFER 3 ☆☆

CUMANA EXT.DRIVE
PLUS 512K RAM EXP.

~~92.90~~ **87.95**

☆☆ OFFER 4 ☆☆

CUMANA EXT.DRIVE
PLUS XCOPY PRO

~~94.90~~ **89.95**

☆☆ OFFER 5 ☆☆

ACCESSORY PACK
MOUSE MAT
MOUSE POCKET
DISK CLEANING KIT
DUST COVER

~~9.90~~ **7.99**

COMMMparing packages

BEGINNERS

Why do I need a comms package?

Modems need to be told exactly what to do, like 'dial a number and wait for another modem to reply'. You need some way of seeing what the modem is receiving, and a means to enter commands to the computer at the other end. A dumb terminal can take care of the input/output operations, but a comms package will keep track of things like dialling the remote system and using the correct binary file transfer protocol as well.

So why can't I just send a binary file straight down a phone line?

Well, you could if you could guarantee absolutely no telephone line noise and that the receiving modem was in perfect

BEGINNERS START HERE

BEGINNERS

synchronisation with the sender.

This is, of course, impossible, so we have to use file transfer protocols which repackage and check the data as it is sent.

What would anyone use a script language for?

A simple script could automate logging on to a board, spool all the new messages to disk and log off, allowing you to compose replies off-line. A more complex script could log on to a financial services system, gather share prices, log off, and process the data using a spreadsheet. This second example would probably require an ARexx-compatible terminal and spreadsheet, though. Writing good scripts is quite an art, as there are so many things which can go wrong in an automated modem connection.

Stewart Russell takes a look at four of the major players in the comms software market – and is rather surprised by the results...

"You've bought your modem, and now it's sitting by the side of your Amiga looking smart. All you need is some software to make your computer talk to it. And that's what I've been looking at this month."

Stewart C Russell

In the beginning, comms both hurt and helped the Amiga. The hurt came from unscrupulous types spreading what little commercial software there was via dubious bulletin boards. More honest comms users helped the fledgling Amiga community by spreading news, answering questions and distributing public domain software.

2,400 baud was a luxury then, and the early Amiga comms packages were extremely rudimentary. The scene gelled with the release of DJ James' *Communicator* program – a reliable, simple piece of software distributed with full C source. Here was a solid

base on which more complicated terminals could be built.

These days, modems have advanced so much that the serial port of a stock Amiga has extreme difficulty driving them at top speed. Error correction and data compression allow transmission rates of a hundred times that of the old 300 baud modems, even along Telecom's foosty old lines.

Thankfully, comms software has advanced along with the hardware. Users now expect advanced transfer protocols, colour graphics, scrollbar buffers, call timers and other convenience features. These won't

continued on page 121

JARGON BUSTING

ANSI Graphics – A set of character control codes which allow (usually eight) colour block graphics and simple animations.

ASCII Capture – A feature which allows all the text received from the modem to be stored in a file for later perusal.

Kermit – A protocol much used in mainframe communications. Very slow, but immune to almost any amount of line noise.

Protocol – Any agreed standard way of transmitting data in order to minimise the corrupting effects of telephone line noise.

Script Language – A mini programming language built into a comms package. Allows repetitive tasks to be automated and, with care, can dramatically reduce on-line time.

Tektronics – A vector graphics and text standard widely used in scientific institutions and absolutely never used on bulletin boards.

VT – A family of character control code sets devised by DEC. VT-100 is the most common, and is the basis for the ISO control code standard used by the Amiga.

X-Modem – A rather slow and ancient protocol which is supported by virtually every bulletin board. Sends data in 128-byte blocks with a checksum byte.

X-Modem-CRC – Similar to X-Modem, but uses a 16-bit Cyclic Redundancy Check instead of the checksum for better error detection. Slower but more secure than X-Modem.

XPR – A system of external protocol libraries peculiar to the Amiga. It allows any XPR-compatible comms package to take advantage of any of the XPR protocols, without ever needing to know exactly how each protocol works. *NComm* uses it extensively.

Y-Modem – X-Modem-CRC with 1,024-byte blocks. Fast when used on good phone lines. Various other versions, such as Y-Modem G and Y-Modem Batch, have been developed to improve the transfer rate.

Z-Modem – A Y-Modem variant which alters data block size to accommodate patches of line noise. Batch file sending is possible, and cancelled transfers can be resumed without error. Z-Modem is currently the best general-purpose protocol available.

NO COMPUTER IS COMPLETE WITHOUT A DUST COVER

Protect your Amiga with a dust cover
from the BBD Professional Range.

Made from best quality proofed nylon that has been treated with a flame retardant and an anti-static inhibitor. BBD Dust Covers are tastefully finished with contrasting piping. They never crack, discolour, tear or fade. They can be washed and ironed. So confident are BBD of the quality that they give a no-quibble guarantee with every cover.

**BBD dust covers are not expensive and all
our prices include VAT and P&P**

Amiga 500, Keyboard only£5.62
Amiga 1000, one piece cover£8.69
Amiga 2000, two piece set£12.21

In addition to the above BBD offer a wide range of other covers.
These include printer covers from only £6.38
Why not contact us for further details

**BBD DUST
COVERS**

Dept. 35, The Standish
Centre, Cross Street,
Standish, Wigan, WN6 0HQ



Telephone: 0257 425839 ext 35

Fax: 0257 423909

VISA

Sheer Perfection in Computer Protection

GPS

All software includes first class
postage. Please add £9 for
courier delivery of hardware.

Tel: (0268) 782949.

"STOCKS SUBJECT TO AVAILABILITY".

AMIGA HARDWARE

A500 "no software"	£299.95
A500 "Screen Gems"	£349.95
A500 "Screen Gems" + A501	£359.95
A500 "Class of the 90's"	£514.95
A500 "First Steps"	£514.95
A1500 "Base Unit"	£599.95
A1500 "Base Unit + Software"	£649.95
A1500 "Base Unit + Software + Monitor"	£899.95
A590 "20MB Hard Disk"	£259.95
A501 "Memory Expansion + Captive"	£54.95
A1084SD "Colour Monitor + Cable"	£244.95
ROTEC RF332C "3.5" Disk Drive"	£54.95
Philips CM8833/2 Colour Monitor	£234.95
CITIZEN SWIFT9 Colour Printer + Cable	£209.95

AMIGA SOFTWARE

AMOS	£32.95
Deluxe Paint II	£19.95
Deluxe Paint III	£59.95
Deluxe Print II	£34.95
Deluxe Video III	£69.95
Disney Animation Studio	£74.95
Kindwords V2.0	£36.95
Mavis Beacon Teaches Typing	£22.95
Pagestream V2.1	£139.95
Pro Page V2.0	£149.95
AT ONCE PC EMULATOR	£169.00
Many other Amiga titles in stock	CALL

AMIGA CONSUMABLES

10 Sony Unbranded 3.5" Disks	£5.95
25 Sony Unbranded 3.5" Disks	£11.95
50 Sony Unbranded 3.5" Disks	£21.95
100 Sony Unbranded 3.5" Disks	£39.95
20 SONY BRANDED 3.5" DISKS + BOX	£17.95
Amiga Connecting Cables	CALL
INTRODUCTION TO AMIGA VIDEO	£14.95
INTRODUCTION TO WORKBENCH VIDEO	£14.95

Please make cheques and postal orders payable to:



GPS,
PO Box 571, Rayleigh, Essex, SS6 9NE
CREDIT CARD HOTLINE: (0268) 782949



DISCS



	3.5" DS/DD	3.5" SONY
25	9.99	12.99
50	18.99	23.99
100	32.99	43.99
250	76.99	107.99
500	148.99	199.99
1000	284.99	389.99

LOCKABLE DISC BOXES

40 x 3.5	-	£3.99
80 x 3.5	-	£4.49
120 x 3.5	-	£6.49

DISCS

*Our disks are fully
guaranteed and come
complete with labels.

RIBBONS Post Free

	1 OFF	3 OFF
CITIZEN 120D/LSP10/124D SWIFT 24	2.50	2.30
CITIZEN SWIFT 24 COLOUR	15.00	-
EPSON FX/MX/RX80/FX800/LX800	3.20	3.00
EPSON LX80/86	2.00	1.80
MANNESMANN TALLY MT80	4.80	4.60
PANASONIC KXP 1080/81/82/180/1190/1123	2.90	2.70
PANASONIC KXP1124/1140	2.60	2.40
STAR LC10 MONO	2.80	2.60
STAR LC10 4-COLOUR	5.90	5.70
STAR LC24-10	2.80	2.60
STAR LC24-10 COLOUR	12.50	-
STAR LC200	3.20	3.00
STAR LC200 COLOUR	11.50	-
STAR LC24-200	2.80	2.60
STAR LC24-200 COLOUR	12.50	-

ACCESSORIES - POST FREE!

Amiga External Drive	57.99
Amiga 512k Upgrade, clock	23.99
Amiga 512k Upgrade, No clock	21.99
Mouse Mat (Boxed)	2.99
Mouse Holder	2.99
2 Piece Universal Printer Stand	6.99
3 1/2 Disk Clean Kit	2.99
5 1/4 Disk Clean Kit	2.99
Roll of 1000 3 1/2 disk labels	8.99
Printer Cable (1.5mtr)	3.99

PAPER Top Quality

	1000	2000
FANFOLD WITH MICRO-PERFS		
11 X 9.5 60GSM	7.99	13.99
11.66 X 9.25 (A4) 70GSM	10.49	18.49
11.66 x 9.25 (A4) 80GSM	11.99	20.49
11.66 x 9.25 (A4) 90GSM	13.99	23.99

**SORRY! MAIL
ORDER ONLY**

ALL PRODUCTS SUBJECT
TO AVAILABILITY

ALL PRICES INCLUDE VAT.
PLEASE ADD £2.99 POSTAGE AND
PACKING FOR DISKS + BOXES £3.99
FOR PAPER. E.O.E.



VISA

Hotline Number 0345 045 455

1st Floor, I-Mex Business Park, 42 Flaxley Road, Stechford, Birmingham B33 9HL



**SNAP
COMPUTER
SUPPLIES LTD**

continued from page 119

help you make a connection (only a reliable modem will do that) but they certainly do assist in the best use of your precious on-line time.

There are many, many comms packages for the Amiga. Instead of looking at all of them – which would be rather impractical, and would probably take up most of the magazine – the top two commercial packages are compared with the their shareware opposite numbers.

A-TALK III

According to Oxix, *A-Talk III* is a 'total communications package'. It attempts to give you all the comms software you'll ever need, including the small but vital auxiliary utilities, such as file archivers and the like. The only disadvantage with this approach is that the supplied utilities are now rather old-fashioned, although they will serve to download and unarchive more modern ones.

Installation went off without a hitch, since no attempt was made to alter the startup-sequence. An Assign command did have to be added manually, but this seeming annoyance does ensure that the machine will boot properly. Too many packages attempt a really clever hard disk installation routine that doesn't quite work, so Oxix deserves praise for this simple approach.

Whoever wrote *A-Talk III* really likes Intuition gadgets. The 'quick configuration' menu boasts no less than 85 option gadgets under 26 different headings. This gives thousands of options presented in just one medium resolution screen.

While we're on the subject of screens, I would like to say that a program as expensive as *A-Talk III* should fully support PAL screens. Unless you want to stick to the four colour Workbench screen, or use Tektronics terminal emulation (which you won't), you will be sold short by the customary 56 lines.

You will no doubt need to dive into the manual for moral support on numerous occasions, and when you do you will be surprised by the clarity of the text. It explains many procedures that other manuals forget about, like logging in to different types of systems, and how file transfer protocols work.

Although *A-Talk III* has all the protocols required for using BBSs, it is really geared to mainframe connections since it offers many terminal emulations. Its modem options are uncharacteristically inflexible – you are given a list of just ten or so models to choose from, many of which are now obsolete, and most of which were never actually available in this country anyway.

A-Talk III's saving grace is its script language. Not only can it run a simple BBS host (*Online!* and *NComm* can also do this), it can also provide remote access to your Amiga via a complex ARexx script. Thus, whatever you can do in a Shell you can also do with *A-Talk* over a telephone line.

The basic problem with *A-Talk III* is its price. If it was cheaper, you could forgive its flaws, but its present cost means that its imperfections become rather more major causes for complaint.

ONLINE! PLATINUM EDITION

Available as part of the *Works!* *Platinum Edition* integrated system, or as a stand alone package, *Online! Platinum Edition* tries to maximise value for money and ease of use. And, for the most part, it succeeds in its aims.

Installation is very polished. First, the integrity of all the files on the distribution disk is checked, and then a slick 'Intuitionised' program asks for the installation path. The program will modify you startup-sequence to accommodate an Assign command. Unfortunately, the assignment is made without the all-important colon in the device name, so a manual fix with a text editor is required; a shame, since the install routine is superficially impressive.

BULLETIN BOARD UPDATE

Stephen Ogbourne, sysop of the Public House BBS in Cardiff, has informed me that the number of the board has changed to 0222 665907. The number given in *Amiga Shopper* issue 2 is no longer current, and should not be used.

Having fallen at the first hurdle, *Online!* recovered well in use. The program has all the features you need to use BBSs: ANSI graphics, X- and Z-Modem protocols, a call timer, and ASCII capture. It has VT-102 and Tektronics 4010 terminal emulations which, in conjunction with the rather archaic Kermit file transfer protocol, could find uses in connecting to university computers. More folks will find a use for the included CIS B protocol, as used by the huge online system CompuServe.

For some curious reason, MSS devised its own protocol, SADIE. SADIE allows simultaneous uploading, downloading and chatting to the sysop; sounds good, no? The only trouble is, only MSS's own BBS-PC software supports SADIE, so you're fairly unlikely to use it that often. Shame, really – a good idea spoilt by not releasing the details of the protocol into the public domain.

continued on page 123

FEATURE COMPARISON TABLE

	ONLINE! PLATINUM	A-TALK III	JR-COMM 1.02	NCOMM 1.92		ONLINE! PLATINUM	A-TALK III	JR-COMM 1.02	NCOMM 1.92
Phone book entries	40	60	9999	Infinite	H19	N	Y	N	N
Macro Keys	20	20	40	20	Tek4010	Y	Y	N	N
Protocols: XModem	Y	Y	Y	Y	Tek4014	N	Y	N	N
XModem-CRC	Y	Y	Y	Y	SkyPix	N	N	Y	N
WModem	Y	Y	Y	N	ASCII: Scrollback	Y	Y	Y	Y
YModem	Y	Y	Y	Y	Cut & Paste	Y	Y	N	Y
YModem-Batch	N	N	N	Y	Capture	Y	Y	Y	Y
YModem-G	N	Y	Y	Y	Send	Y	Y	Y	Y
ZModem	Y	Y	Y	Y	Search	N	N	N	Y
CIS B	Y	N	N	N	Max Baud Rate [2]	57,600	57,600	57,600	115,200
CIS B+	N	N	Y	N	Multi-Serial support	Y	Y	Y	Y
CIS QuickB	Y	N	N	N	Call Timer	Y	[3]	Y	Y
Kermit	Y	Y	N	Y	Logging	N	N	Y	Y
SADIE	Y	N	N	N	Costing	N	N	Y	[4]
XPR library	N	Y	N	Y	Scripting	Y	Y	N	Y
Screen: Workbench	N	Y	Y	Y	Host	Y	Y	N	Y
Custom PAL	Y	N	Y	Y	Remote	N	Y	N	N
Overscan	Y	[1]	N	N	ARexx	Y	Y	N	N
Interlace	Y	[1]	N	Y	Price	£40.82	£91.91	US\$35	[5]
Max colours	8	8	16	16					
Fonts: Large Fonts	Y	Y	N	N					
IBM Fonts	Y	Y	Y	Y					
Local Fonts	N	N	N	Y					
Max Columns	132	132	80	80					
Emulation: VT-52	Y	Y	Y	Y					
VT-100	Y	Y	Y	Y					
VT-102	Y	N	N	N					
ANSI	Y	Y	Y	Y					

Notes:

- [1] Supported only in Tektronics mode
- [2] The standard serial port can only manage 31,250 baud. Higher speeds require 68030 and/or multi-serial board
- [3] The timer is manually operated, hence does not give a reliable estimate of call duration
- [4] Via an external utility
- [5] The authors request a gift of equivalent value to the program

YOU MUST BE CRAZY

NOT TO BUY YOUR DISKS AT THESE PRICES EVERY
DISKETTE 100% CERTIFIED 100% ERROR FREE

DISKETTES

50 DSDD 3.5"£24.00 200 DSDD 3.5"£64.00
100 DSDD 3.5"£36.00 500 DSDD 3.5"£155.00

3.5" High Density
55p each

5.25 DSDD
Only 25p each

5.25HD
Only 40p each

STAR OFFER

200 DSDD 3.5" **£72.00**
Plus 2
100 capacity boxes

ACCESSORIES

50 capacity lockable box 3.5"£3.95 Mouse mats£2.95
80 capacity lockable box 3.5"£4.50 3.5" head cleaner£2.95
100 capacity lockable box 3.5"£5.50
Banx Stackable box£8.95

ONLY IF BOUGHT
WITH DISKS

TOTAL SATISFACTION OR MONEY BACK

ALL PRICES INCLUDE VAT & DELIVERY

081-309-5556

DIAL A DISC

6 Walsingham Road, St Pauls Cray, Kent BR5 3BW

Personal callers by arrangement.

All offers subject to availability E/OE.



ANALOGIC
ANALOGIC
ANALOGIC

**Analogic Computers
(UK) Ltd**
152 Latchmere Road
Kingston-upon-Thames
Surrey KT2 5TU

Telephone
Mon-Sat 9am-7pm
081-546 9575
Tel/Fax:
081-541 4671

AMIGA COMPUTERS

Amiga 500 computer, mouse, TV modulator, manuals, workbench **£299.00**
Amiga 500 as above + 512K Ram expansion **£325.00**
Amiga 500 1Mb Cartoon Classics **£359.00**

AMIGA DISK DRIVES

Internal 3.5" Sony Disk Drive **£49.95**
External 3.5" Disk Drive **£59.95**

PHILIPS 15" TV/MONITOR

Dedicated monitor input + high quality medium resolution monitor
+ remote control + teletext TV + Scart cable **£269.00**

PROTAR A500 HARD DISK DRIVES

Please phone for prices

AMIGA 500 REPAIRS

Without **DIAGNOSTIC** fees

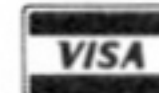
★ **Fast turnaround** ★ **Fixed charges**

£49.95

★ We provide pick-up service of faulty computers for only **£5.00** + VAT



★ All prices include VAT and **NEXT DAY DELIVERY**



Amiga Hard Disks and Ram

Fujitsu 3.5" SCSI Hard Disks

43Mb, 25ms, 1" high£199
90Mb, 19ms£349
135Mb, 19ms£469
180Mb, 19ms£520

All Fujitsu drives fully support synchronous SCSI transfer
(with Amiga 3000 and some Amiga 2000 controllers)

Tapestreamers now available!

150Mb SCSI tapestreamers now available.
Prices start at £399. Please ring for details.

Seagate, WD, Conner, Maxtor

Far too many drives to list here, please ring for details
and prices. MFM, RLL, ESDI, SCSI and AT drives available.

Amiga SCSI controllers

Please ring for details and prices of IVS, XETEC, GVP,
SUPRA, ICD MICROBOTICS, DATAFLYER and
COMMODORE controller cards.

RAM Chips

256x4 80ns DRAM (for A590, A2091, A540, etc.)£42 per Mb
1 Mbx1 80ns DRAM (for A2058, 8-Up, etc.)£44 per Mb
1 Mbx9 80ns SIMMS (for GVP Series II, etc.)£42 each
4 Mbx9 80/70ns SIMMS£Call

Plus 3.5" SCSI Hard disks (Quantum)

52Mb, 17ms, 1" high£249
85Mb, 17ms, 1" high£399
105Mb, 17ms, 1" high£439
120Mb, 15ms£499
170Mb, 15ms£689
210Mb, 15ms£749

All Plus hard disks have a 64kb inbuilt cache
which gives an 11ms read access time.
Quantum is a subsidiary of Plus Development

FREE PUBLIC DOMAIN

Buy any hard drive over 100Mb from us, and we will put
on as much free Public Domain software for the Amiga
as you want! Just say how much you want, you can list
specific Fish disks (1 to 410) in your order if you wish.

Almathera Systems Ltd.

Tel (081) 683 6418 Fax (081) 689 8927
Challenge House, 616 Mitcham Rd,
Croydon, CR9 3AU.

All prices **include** VAT and delivery.

Data cables and 5.25" mounting frames are extra. Free PD can only
be provided for controllers that support Commodore's Rigid Disk Block
standard (CBM A2091 & A590, GVP Series II, Microbotics Hardframe,
ICD etc). Please check your controller manual.

All prices are correct at time of going to press. E&OE. All trademarks respected.

SHOPPING LIST

Commercial Packages:

A-Talk III£91.91 inc VAT

Published by Oxxi Inc,
PO Box 90309,
Long Beach,
CA 90809-0309, USA
☎ 010 1 213 427 1227

Online! Platinum Edition

.....£40.82 inc VAT

Published by Micro-Systems
Software Inc,
12798 Forest Hill Boulevard,
Suite 202,
West Palm Beach,
Florida 33414, USA

Both distributed in the UK by HB

Marketing Ltd,
Unit 3, Poyle 14,
Newlands Drive, Colnbrook,
Slough SL3 0DX
☎ 0753 686000

User-Supported Packages

JR-Comm 1.02

.....Registration: \$35 (appx. £21)

Supported by John P. Radigan,

Dynalogic,
PO Box 698, Mays Landing,
NJ 08330, USA
E-mail: jprad@faatcl.UUCP

NComm 1.92Anything!

Supported by Torkel Lodberg,

Pilotveien 10,
N-0384 Oslo 3, Norway
Email: torkell@ifi.uio.no

Both shareware packages
should be available from
good BBSs and public
domain software houses.

continued from page 121

A small sticker on the box and some notes tucked away in a ReadMe file mention the fact that *Online! Platinum* has ARexx compatibility written into its script language. This allows scripts to control other programs and manipulate data in a very powerful way. You do need to buy ARexx, but the additional flexibility it adds to the program is worth the expense.

Online! Platinum works quickly and reliably, almost to the point of being boringly respectable. It looks like many other pieces of two-year-old Amiga software; old, but still able to give solid service.

JR-COMM 1.02A

JR-Comm is shareware, so the version you will find on the bulletin boards starts complaining if you don't register within 30 days.

JR-Comm excels in its file transfer handling. Indeed, the options for tweaking the Z-Modem protocol alone fill most of a screen. I've never had *JR-Comm* fail on a transfer, except when I had the parameters set incorrectly.

And there lies the problem with the program: the huge number of different, alterable parameters. Too many options are presented at once. I feel dissuaded from using the package since all the gadgets scream out to be used.

If you can handle this, you will find the program rewarding to use. It has a particularly fine emulation of IBM PC ANSI graphics, right down to the emulation of a PC keyboard for those few on-line games that may require such a thing.

JR-Comm is the only package reviewed here which does not have a script language. This is no great issue for most people, since browsing and downloading cannot

easily be automated. However, it can sometimes be extremely useful, and the addition of a script language would turn this good package into an extremely fine one.

Obtaining technical support in the UK is somewhat difficult. Mr Radigan, the program's author, patrols the Amiga communications newsgroup on Usenet with great regularity, and answers queries quickly and clearly. Unfortunately, very few comms users in the UK have access to Usenet, except for CIX and Direct Connection subscribers and a few universities. Work on a new version with scripting, ARexx and XPR support is in progress, and these developments may push *JR-Comm* way beyond its competitors – watch this space.

Despite the few problems, the fact that you can try *JR-Comm* for yourself before being committed to any expenditure is a great boon, and the program has thousands of satisfied users the world over.

NCOMM 1.92

NComm poses a problem to its users: how much is a really good piece of software worth? All the authors ask in the way of payment for this software is a gift equal to the perceived value of the package.

NComm can trace its ancestry back to Dan James' *Communicator*, but only the very core code remains. The program was originally written as an attempt to support the Norwegian character set in a usable comms package, but like many software projects it grew way beyond the original aims.

The most useful feature of *NComm* is its internal multitasking. Most other packages don't allow you to type commands into the terminal while a requester is on the screen, but *NComm* does. This allows you to

BEST BUY

NComm 1.92

Competent and inexpensive;
currently the best of the bunch.

HIGHLY COMMENDED

JR-Comm 1.02

Its complexity and lack of scripting
knocked it into second place.

call up a file requester and find a file to transmit before typing the upload command into the remote system. It may seem trivial in explanation, but in use it is indispensable.

NComm uses XPR libraries to handle its more complex file transfer protocols such as Kermit and Z-Modem. This has caused a few problems, since the newest version of the XPR Z-Modem.library is flawed, frequently causing bad transfers, so an older and slower version has to be used until the library is fixed.

Ease of use has been designed into *NComm*. You'll never be confronted with a barrage of options all at once. Except for phonebook and modem configurations, everything can be changed from the menu bar. Thus, only the options you actually need to see are displayed.

Phone charges are high in the UK, and *NComm* can keep a log of all calls made. External utilities estimate your bill and allow voice calls to be added to the log. These utilities are registered (and distributed) separately.

People with extremely fast modems complain of intermittent problems with *NComm*, but my V.22bis machine causes no hassle. There are a lot of new features to *NComm* 1.92; so many that users of *NComm* 1.9 will feel that it's almost a different program. **AS**

CHECKOUT A-TALK III

Documentation ●●●●●

Some day, all manuals will be written like this. All the program's features are described in minute but readable detail.

Features ●●●●●

Absolutely every terminal emulation you could ever want. Curiously, though, there's no support for PAL displays.

Ease of Use ●●●●●

Installs and works straight from the box, but the huge number of configuration options is daunting.

Price Value ●●●●●

Very expensive at £91.91, but offers a complete comms software solution.

Overall rating ●●●●●

A powerful and reliable comms package, with an unfortunately high price tag.

CHECKOUT JR-Comm 1.02

Documentation ●●●●●

Lots of it, and geared towards the expert user. The utterly clueless would probably remain so.

Features ●●●●●

No script language, but just about everything else. Possibly the best Z-Modem implementation anywhere.

Ease of Use ●●●●●

Huge banks of options frighten the timid, yet once installed the program is flexible and fast.

Price Value ●●●●●

Superb – \$35. Wonderful technical support – if you have access to Usenet.

Overall rating ●●●●●

Not really for beginners, but the one to go for if you prefer raw usability to cuteness.

CHECKOUT NComm 1.92

Documentation ●●●●●

Slightly iffy English sometimes, but the idea gets through anyway. Full of hints for quicker connections.

Features ●●●●●

Internal multitasking of requesters is truly wonderful. Despite the lack of ARexx scripting, most tasks can still be automated.

Ease of Use ●●●●●

Doesn't sling too many options about at the one time. All the features are well laid out and easy to change.

Price Value ●●●●●

Beautiful; you only contribute what you think it's worth!

Overall rating ●●●●●

An incredibly powerful package which also manages to be easy to use. Should suit the majority of comms users..

CHECKOUT ONLINE!

Documentation ●●●●●

Brief, but good. Explains all that is required to be explained, but little of the deep background info.

Features ●●●●●

Purports to be a BBS user's package, but lacks the vital call costing and logging features. Superb script language, though.

Ease of Use ●●●●●

Apart from a cute but subtly flawed install routine, it does what it should, when it should.

Price Value ●●●●●

£40.82 is as low as is commercially viable, yet it has lots of solid features..

Overall rating ●●●●●

If you require scripting and ARexx interoperability, *Online!*'s the one, despite its dated looks.

Software for free



"Join me on my monthly journey to the public domain, where all software is free - or, at least, extremely cheap."

Phil South

UTILITIES

Although there isn't much around in the way of utility PD at the moment, what there is is certainly good quality.

MESSYDOS

NBS disk U619

The trackdisk.device on the Amiga is very versatile, and with judicious programming it can be made to read other formats. So with this in mind, you'll be chuffed to hear that MS-DOS disks can be read in your Amiga drives with this program. It's a sort of PD version of the Consultron program *CrossDOS*. When you insert an IBM-type disk in your Amiga, the *MessyDOS* driver is checked from the mountlist in your Devs directory, and Bob's your uncle - you can read and write to the disks as if they were normal Amiga disks. All you need to do is add the following to your mountlist:

```
MS0: FileSystem =
    L:MessyFileSystem
    Device = messydisk.device
    Unit = 0
```

Welcome to the world of public domain software. And before anyone accuses this of being an all-Amiganuts issue, stop it right there. Amiganuts figures large in this and every issue because the company sends a lot of high-quality stuff to me every month, and by and large what's sent in gets reviewed. I've said this before and I'll say it again: I'll review programs I get sent, and if PD houses don't send me any software, I can't review it, can

```
Flags = 0
LowCyl = 0 ; HighCyl = 79
Reserved = 0
Surfaces = 2
BlocksPerTrack = 9
Buffers = 5
DosType = 1
BufMemType = 1
BootPri = 0
Stacksize = 3072
Priority = 9
GlobVec = -1
Mount = 1
```

```
#
MS1: FileSystem =
    L:MessyFileSystem
    Device = messydisk.device
    Unit = 1
    Flags = 0
    LowCyl = 0 ; HighCyl = 79
    Reserved = 0
    Surfaces = 2
    BlocksPerTrack = 9
    Buffers = 5
    DosType = 1
    BufMemType = 1
    BootPri = 0
    Stacksize = 3072
    Priority = 9
    GlobVec = -1
    Mount = 1
```

Of course if you have a DF2: or DF3: you will need to alter the second entry or add additional entries named MS2: or MS3: etc. Then add the command:

```
mount ms0:
mount ms1:
```

and your Amiga will recognise MS DOS disks.

I? I get a lot of stuff from Amiganuts, 17 Bit, Crazy Joes, NBS, New Wave and various others, which is why those people are in almost every issue of *Amiga Shopper*. If you keep me regularly supplied with new stuff as it comes in, then I can report on what's new in the PD market, and you can publicise all your new disks. It's a simple symbiotic relationship, and one you should fairly quickly get the hang of!

Right, that's enough sarcasm, let's hit the reviews.

This is not so much a single utility, but rather a whole subsystem which co-exists with your regular Amiga system, ready to be used at any time.

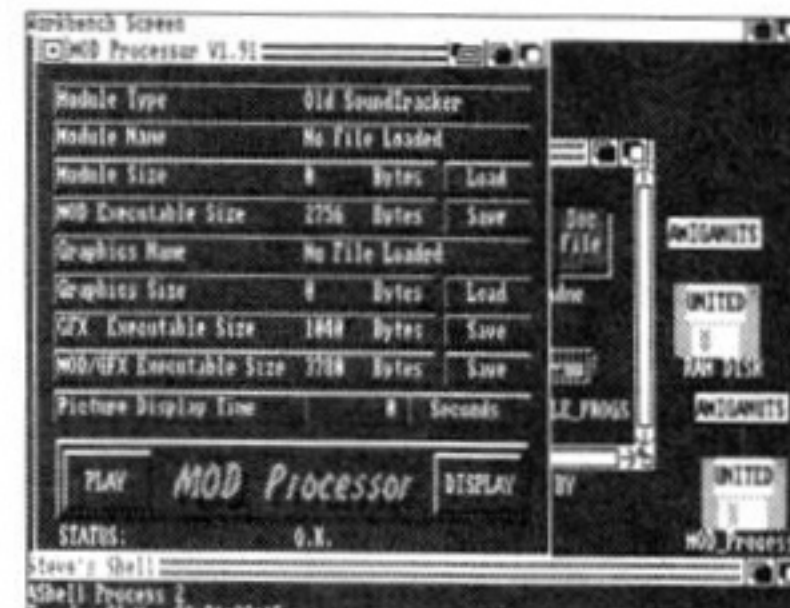
The really neat thing about *MessyDOS* is that the MS-DOS disks can be called like any other Amiga device. So you can load and save IFF pictures to a paint program from a PC disk, as well as text files and so on. This is a top notch utility, and one which all users should have, especially those who also have PCs at home or at work.

Value for money.....8/10

MODULE PROCESSOR 1.91

Amiganuts disk 1068

An update to previous versions, this is a new revision of Steve Marshall's module-to-executable processor. Simply take a module from your



Module Processor makes music files executable.

favourite music tracker, slip it through *Module Processor*, and you've got a chunk of executable code which can be run just like any other program - very useful for adding music from tracker sources to non-tracker programs.

Value for money8/10

continued on page 127

BEGINNERS

Software for free? How's that then?

This may sound like a call to piracy, but public domain software is free to anyone. Yes even you sir, you at the back with the Jolly Roger. There isn't any catch, unless you count the fact that there is so much PD software on offer that it's hard to choose what you're going to have. And that's where I come in.

But what does PD mean?

The public domain concept is borrowed from the early days of mainframe systems, where enthusiasts (called 'hackers' then, before the word had less pleasant connotations) produced programs and distributed them to their friends and fellow hackish types, asking for no payment but the glow of being recognised as a truly hackish coder. The copyright

BEGINNERS

BEGINNERS

was waived by the author, and

so the program was said to be in the public domain - that is to say, any member of the public had a right to copy and use the program however they wished, provided that the author's credit and any relevant documentation was distributed with the program.

So how can I get hold of all this wonderful free PD?

Either buy it from a PD library (see the last page of this article for a list) or, if you've got a modem, download it from a bulletin board. These are computers with modems, which anyone can use a phone and modem to log on to, download a lot of demos and utilities, leave a few messages and programs of their own and log off. You'll find that there are many bulletin boards with Amiga files available for download.

PAYING FOR IT

Be prepared to pay between 99p and about £2.50 per disk from a PD software house. Whether you pay the lower or higher price is entirely up to you. I suppose the variety in prices depends on how the disks are duplicated. If the company has an office and a duping machine, then it costs money to run. But if

it's built the PD house into an existing business, then obviously it has no overheads to speak of. Some 99p PD houses are good, others are terrible. The only way to find out for sure is to spend 99p. Or read *Amiga Shopper* every month for the same price, and find out from us!

Send your order to :

CRAZY JOE'S
DEPT. AS10
145 EFFINGHAM ST.
ROTHERHAM
SOUTH YORKSHIRE
S65 1BL

Please make cheque / p.o.
payable to "CRAZY JOE'S"

Crazy Joe's

We take you very seriously!

CREDIT CARD HOTLINE

(0709) 829286

FAX ORDERS

(0709) 878308

MINIMUM CARD ORDER £3

24 HOUR SERVICE

Amiga Public Domain Software

KEY TO ABBREVIATIONS : (2) = Number of disks in set; * = 1 meg; ** = 2 meg; (2D) = 2 drives; (X) = Adults Only

DEMOS / ANIMATIONS

016 Space Ace Demo
085 Red Sector Megademo (2)
127 NewTek Demo (2) *
157 Cool Cougar Animation *
161 Kylie Minogue Demo (2)
240 Puggs In Space Cartoon
260 Tree Frog Animation *
288 The AMOS Demo
298 Unicycle Animation *
309 NewTek Demo 3 (2) *
483 ENVI Demo
646 Predators Megademo (2)
744 Red Sector Cebit Demo
747 Popeye Meets The Beachboys
762 The Run Animation *
773 Shark Animation *
825 Budbrain Megademo (2)(X)
853 Dragons Lair Demo *
865 Coma Demo
885 Trip To Mars
897 Scoopex Mental Hangover
908 Madonna Cartoon Animation *
954 Turtles Demo
1001 Station at Khern (3) **
1033 At The Movies Anim **
1105 Cronica's Neverwhere Demo
1110 Fractal Flight
1188 Fillet The Fish
1200 Raiders of the Lost Ark Anim *
1229 Budbrain 2
1238 Evil Dead Demo (X) *
1246 LSD: Comix Disk 1
1287 Wrath of the Demon Demo
1453 More Aerotoons *
1529 Armageddon Demo *
1540 Amy vs. Walker Anim *
1541 Batman Animation *
1551 Too Much 3D *
1552 Magician Animation V2.0 *
1560 Phenomena Enigma Demo *
1628 Do The Bart, Man *
1650 Cronica's : Total Destruction *
1664 Silents : Blue House (2) *
1667 More Classy Animations *
1692 Basketball Animation *
1701 Tron Animation (2) *
1703 Total Respray
1704 Total Recount
1705 Total Restyle
1706 Total Retrial
1707 Decay : Simpsons Demo *
1753 Life Of Brian (2)
1766 Laurel & Hardy (2)(2D) *
1775 Total Confusion *
1782 Carrott : The Chicken (2)(2D)
1784 Carrott : Insomnia (2)(2D)
1818 Darkness Megademo 2 *
1820 Magnetic Fields Demos 92
1823 N-n-n-nineteen Demo
1833 Agatron Animations 33
1834 Agatron Animations 34
1837 Plasmutex Demo
1838 Global Trash Demo
1841 Anti-Lemmin' Demo (2) **
1843 Phenomena Interspace
1844 Goldfire Megademo
1845 Timex Demos *
1846 Enterprise Animation (2)(2D) *
1850 The Wall (6)(2D) *
1856 Betty Boo Anim / Slideshow
1877 AMOS 3D Demo

GAMES

045 Golden Fleece Adventure
117 Monopoly
135 Classic Board & Card Games
195 Electric Train Set
251 Blizzard
314 Breakout Construction Set
315 Return To Earth
496 Holy Grail Adventure *
498 Wanderer
648 Star Trek (USA) (2) *
680 Learn & Play (2)
727 Star Trek (Richter) (2)
766 Treasure Hunt
957 Pipeline
962 Dripl
987 Snakepit
991 Jeopard *
1004 Games Disk 9
1113 Wet Beaver Games
1230 Dragon Cave
1245 Rings Of Zon *
1408 APD58: Super Quiz
1411 APD62: Arcadia
1510 Pick Up A Puzzle (2) *
1512 Picture It (2) *
1517 APD110: Crossfire *
1520 APD115: Balloonacy
1528 APD130: The Wooden Ball *
1531 Simon Says / Space Maths
1532 APD137: Tile Trial *
1533 The Jar *
1539 Megaball *

GAMES PACK

37 titles on 8 disks
including Asteroids, Sys, Tiles,
Bally 2, Pool, YachtC,
Invaders, H-Ball,
Fruit Machine, Block Off,
Shoot Out, Peter's Quest *,
and many more!

8 DISK SET ONLY £8.00

1544 Seven Tiles
1558 Adventure Solutions (2)
1573 APD142: Pair Crazy
1577 APD146: Fruit Machine *
1579 APD148: Demolition Mission *
1580 APD149: Gobbit / Pontoon *
1584 APD153: Missile Command
1591 APD180: Quizmaster *
1608 APD178: Mastermind/Pair Up *
1610 APD180: Dungeon Delver (2)
1612 APD182: Pixie Kingdom (2)
1614 APD184: Towers Of Hanoi
1668 Tomtespet
1670 Wheel Of Fortune
1690 Hints Disk One
1700 Terror Liner 2 (X)
1711 Mental Image Games Disk 1
1715 Frantic Freddie
1720 Cabaret Asteroids
1746 Word Games Volume 1 *
1747 Word Games Volume 2 *
1748 Strategy Games *
1749 Truckin' (2)(2D)
1780 Arcade Game Cheats 1
1790 Serene 2
1827 Scum Haters
1832 Pom Pom Gunner *

MUSIC

022 Sound Atax
052 Awesome Sounds
057 PSB : Suburbia
061 Definitive J. M. Jarre
087 Power Surge
109 Amiga Chart 3
166 Vangelis *
187 Crusaders : Audio X
204 Sound Atax 2
237 Zee's Hip Hop Music
407 CD Player Demo *
409 Crusaders : Freek'd Out!
418 Electric Youth (2)
497 Amiga Chart 5
552 Music Invasion 3 (2)
654 Powerlords : Power Musix 2
700 Digital Concert IV
713 Flash! - Queen
722 Beatmaster Club Mix
724 Technotronic Remix
746 Crusaders : Bacteria
761 Pace Music Disk
824 Digital Concert V
858 Sonix House
866 Pan 3 Music Disk
914 Special Brothers Music 2
935 Madonna : Hanky Panky
940 Hooked On Sonix
941 Soundtracker Jukebox
969 100 C84 Games Tunes
970 The Comic Strip Remix
978 Scoopex : Beast Sonix

SOUNDTRACKER SPECIAL

Make your own music on
the Amiga! This pack includes
the programs, songs, modules
and instruments - enough to
get you started and
keep you going for hours!

8 DISK SET ONLY £8.00

966 Amaze : Revolutions
993 PSA Music Demodisk 1
1026 Digital Concert VI
1107 Stop Right Now! *
1292 Crusaders Does Genesis
1630 Accession : Sun Wind
1685 Depeche Mode Music Disk
1694 Art Of MED Music Disk
1695 Seal : Crazy Remix *
1698 SDFC : Sounds Dr Digital
1713 Spaced Out Vol. 1
1714 Spaced Out Vol. 2
1716 I Think We're Alone Now
1717 Everybody Dance Now
1718 Betty Boo : Doing The Do
1755 Amazing Tunes 2 (3) *
1763 Aamond Gallant Knight (3) *
1772 TaiPan Music Disk (2)
1776 Crusaders : Sheet Music
1777 Beatmasters : Technology
1787 Magnetic Beats 2
1788 Magnetic Beats 3
1821 Academy Music Collection
1822 Brainstorm : Best Of Grubi
1824 SCR Musax 2
1828 Sgt Pepper Revisited (2)(2D) *
1831 Vega Music

SLIDESHOWS

030 J.O.E. Slideshow 2
078 Vallejo Fantasy Art (2)
084 Mega Art Disk
163 NASA Slideshow
167 DigView Slideshow
171 Patrick Nagel Pictures
185 Escher Slideshow
238 TV Sports Basketball
282 Forgotten Realms
299 Roger Dean Slideshow
357 Max's Art Disk 1
411 Photofile Portfolio (2)
572 Utopia : Photomontage 1
573 Utopia : Photomontage 2
617 Neighbours Slideshow
725 Diggy Piggies (2)
742 Madonna Slideshow
767 Cinemaware Slideshow
776 Exodus Real 3D
814 Viz Slideshow
831 Utopia Cartoon Slideshow
832 Utopia : Photomontage 3
863 Screem Queens (2)
878 Sun Slide III
891 Creepshow
899 Madonna Slideshow 2 (2) *
915 Apol's Digishow *
931 Heroic Dreams
942 Garfield Slideshow
968 Gorezone Slideshow (X)
1044 Desert Island Slideshow
1051 Total Recall Slideshow

GLAMOUR DISKS

For a full list send a stamped
addressed envelope to :
BLUE MOON
P.O. BOX 123
WATH-UPON-DEARNE
ROTHERHAM
S63 7DW
Please include a statement
saying you are over 18
(Blue Moon are not connected
with Crazy Joe's in any way)

1062 Golems Gate
1073 Fraxion Fantasy
1082 Annie Jones (Neighbours)
1085 Comic Slideshow (X)
1103 Girls Of Sports Illustrated
1210 Turtles Slideshow
1263 Crusaders : Richter (2)(2D)
1272 Nemesis : Prologue
1277 Fraxion : Divine Visions (2) *
1279 Forgotten Realms '90
1475 Nemesis : Chapter 1 (2) *
1480 The Age Of Slack
1523 Nik Williams Demo
1546 Skywalker Digishow 1
1547 Skywalker Digishow 2
1549 DPaint Colour-cycled Pics
1561 Demons Slideshow 3 *
1666 Mages Staff
1693 WWF Slideshow
1708 Invisible World Slideshow
1719 Yabba Dabba Cartoons
1781 Reflections Ray-Traced
1835 Night Breed Slideshow
1849 Film Posters Slideshow
1876 Reflections Ray-Traced 6

UTILITIES

081 UEdit Word Processor
111 Grafix Utilities 1
118 Grafix Utilities 2
119 Amiga MCAD
180 PageSetter Clip Art
210 Icons!
259 Ultimate Bootblock Coll. (2)
343 Merlin Intromaker
348 TV Graphics (2)
353 Showiz 2.0 (SS maker)
410 DPaint Cartoon Brushes
442 DPaint Fonts Disks (4)
458 HAM Radio Utilities (5)
546 Iconmania!
571 Jazzbench
580 Dope Intro Maker
591 Business Card Maker
595 Amateur Radio Disk
632 MSH (MessyDOS)
642 C Manual
661 Programming Disk
682 Sound Applications (2)
684 Video Applications (2)
697 Graphics Management (2)
901 The Comms Disk
902 QED Text Editor
1071 NoisePlayer V3.0
1078 Prophecy : Fractalscape
1079 Prophecy : Coder Mag 1
1095 Database Workshop (2)
1097 DPaint / PageSetter Clip Art (2)
1099 Video Graphics (4)

HOME BUSINESS PACK

A suite of programs for those
who want to dabble on the
serious side of computing :
Nag, Bank'n, Journal, QBase,
Spread, Wordwright,
AmigaSpell, Inventory, MemoPad
and more!

8 DISK SET ONLY £8.00

1117 Genealogy *
1198 Soundtracker V4.0 (2)
1225 Hardware Projects Mag
1228 ST Emulator (German)
1234 Tetra-Copy
1273 C-Light
1294 Chaos & Fractal Progs
1432 AMOS Paint
1450 Virus Superkillers
1451 ElectroCAD
1452 AmiBase
1473 ARP 1.3
1535 Master Virus Killer V2.0
1536 North C (packed)
1537 North C (unpacked) (2)
1545 SpectraPaint V3.0
1550 FlexiBase V2.0
1589 APD138: Spanish Tutor
1608 APD176: Database Master 2.0
1629 ZX Spectrum Emulator
1663 Dynamite Cut 'n' Paste Fonts
1712 Ham Lab V0.91 *
1736 Archivers Disk *
1819 Music Rippers
1858 Demolishers : 202 Utilities!
1878 Textplus Shareware WP
1880 DCopy & Utilities

These are just a few of the many disks in the library. For details of the others send 50p for our CATALOGUE DISK which also contains a FREE game!

PUBLIC DOMAIN PRICES

1 - 8 disks @ £1.25 ea.

10 or more @ £1.00 ea.

Order 8 disks and
choose **2 FREE!**

Price is per disk
NOT per title

BLANK DISKS, DISK BOXES & ACCESSORIES

BLANK DISKS

10 disks £4.99
50 disks £22.50
100 disks £39.99
150 disks £54.99
200 disks £69.99

DISK BOXES

10 capacity 99p
40 capacity £4.99
50 capacity £5.99
80 capacity £6.99
100 capacity £7.99

OTHER

Mouse Mat £2.99
Keyboard Cover .. £2.99
Drive Cleaning Kit . £1.99
1,000 Disk Labels. £12.99
Printer Cable (Para) £6.99

PLEASE NOTE PRICES MAY DIFFER FROM OUR SHOP PRICES

POSTAGE

UK, Channel Isles....FREE
OVERSEAS AIR MAIL
Europe, Eire ... £2.50
Rest of World ... £4.00

Please note that payment
must be in Sterling

ELECTRICLOWN

AT LAST A NEW RANGE OF SELECTED PROGRAMS

★ ON QUALITY MENU DRIVEN DISKS ★

The Electric range of Disks has been specially compiled from the thousands of P.D. titles available. They are fully menu driven and topic related. But don't just take our word for it, why not check them out.

ANTI-VIRUS TOOLKIT

BOOTX
MASTERVIR 2-1
VIRUS 4-01
ZEROVIRUS 111
VIRUS CHECK

ALL DISKS
VIRUS FREE

FULL FRED FISH NOW UP TO 500

• T-BAG RANGES AVAILABLE •
PLUS MANY MANY MORE.

SEE OUR CATALOGUE DISK.

* QUALITY SELECTED P.D. *
* QUALITY DISKS - Only the best *
* QUALITY SERVICE - 1st Class Post *
** Please allow 7 days for cheques to clear **

ELECTRIC BUSINESS PACK

YOURS FOR ONLY
£5.00 including P & P

• 02 WORDPROCESSING
• 04 DATABASE 1
• 05 SPREADSHEET

WORDPROCESSING

TEXPLUS
UEDIT
WORDWRIGHT
AMIGASPELL
X-SPELL
WORDCOUNTER
KEYCLICK

OUR FULLY MENU DRIVEN
CATALOGUE DISK IS ONLY COMES
COMPLETE WITH FULL DISK
DESCRIPTIONS.

70p

OR FREE WITH
YOUR
FIRST ORDER.

DISK UTILITIES

FIXDISK
FORMAT
DISKSPEED
M.R. BACKUP
SHOWDISK
SID
ZAP

PROGRAMMING UTILITIES

BI
CALLS
CREF
ERR
GETSPRITE
ICON2C
IMAGE EDITOR
INDENT
LIBCOUNTER
KEYCLICK

DISK / FILE EDITING

DEKSID
DISKX
FILEMASTER
SPCTORAMA
ZAP

PRICES

ELECTRIC Range
£2.00 ea.

ALL OTHER DISKS

1-5.....£1.30
6-10.....£1.20
11-15.....£1.10
16+.....£1.00

ALL PRICES INCLUDE POSTAGE AND PACKAGE

CONTACT: PAUL or MARIA
FEN HOUSE, 90 NOTLEY ROAD,
LOWESTOFT, SUFFOLK NR33 0UG

Telephone 0502 ~ 566752 PROP: P. BLYTH

ALL CHEQUES / PO's payable to ELECTRICLOWN

HyperQuick

28 Forrest Rd., Penarth, Cardiff CF6 2DP

UTILITIES

- 101 TetraCopy - Good Disk Copier
- 102 DCopy - Excellent Disk Copier
- 110 NComm V1.9 - Hands on Modem disk
- 111 JRComm - Good but complicated
- 120 DPaint Fonts (4)
- 121 DPaint Cartoon Brushes
- 122 TV Graphics (2) - Ideal for DPaint
- 124 DTP Clip Art (2) - Ideal for DPaint
- 129 HamLab - image Converter
- 133 Iconmakers - some good progs.
- 141 C-Light - Darn good Ray Tracing.
- 142 Beazier Surf - More Ray Tracing.
- 156 IntroMaker - Design your own startup
- 159 SuperWorkbench v1.5 - SUPERB!!
- 161 Jazzbench
- 162 Sid V1.06 - Essential Dir Utility
- 187 MessyDos - MSDOS on the Amiga
- 190 NorthC V1.3 - C Compiler
- 192 'C' Tutorials (4) - Learn 'C'
- 201 NoisePlayer V3
- 204 Soundtracker V4.0
- 205 Perfect Sound V1.93
- 210 Med V.3 - THE best music Creator
- 211 Sound Applications (2)
- 223 QED Text Editor
- 225 uEdit V2.6 - Excellent Editor
- 229 Spread - Good. Simple Spreadsheet
- 230 Textplus V3.0 - Superb Wordprocessor
- 238 Assassins Multivision
- 250 SynchroPacker V4.6 - Good
- 301 A-Gene V3.12 - Family Trees - V.Good

MUSIC

- 402 Stop Right Now! *
- 403 Madonna: Hanky Panky
- 406 Betty Boo
- 410 Digital Concert IV - Not Bad.
- 415 Bomb the Bass - Good
- 418 Depeche Mode - Good Sound
- 421 Flash - Queen (2) - Well done & long
- 422 Vangelis *
- 438 Cave: Synthetic Power - V.Good.
- 440 J.M. Jarre: Definitive - Good
- 445 Power of Love: Huey Lewis (2)
- 447 Crusaders Does Genesis - Excellent
- 451 The Art of Med - long MED Samples.

Key

* denotes 1 meg reqd.
(x) Figure in brackets denotes the
No. of disks in set.

DEMOS/SLIDESHOWS

- 603 Billy Connolly (2) - O.K.
- 605 Panthorux Megademo (2) *
- 607 System Violation Demo *
- 610 Cronics: Total Destruction *
- 618 Vortex Megademo
- 619 Evil Dead Demo *
- 623 ELVIRO Demo - fantastic Game Demo
- 630 Ecstasy Demos *
- 640 RED SECTOR MEGADEMO (2) -> SUPERB
- 644 SILENTS: BLUE HOUSE(2) -> Game & Demo
- 650 IRAQ DEMO -> Extremely Funny
- 651 Madonna Cartoon - Very Short
- 670 BATMAN -> Very well done anim.
- 673 POGO ANIM -> (1.5 meg reqd.) V. Good
- 674 AMY V'S WALKER
- 701 Comic Slideshow - V. Funny
- 703 TV Sports Basketball
- 705 Terminator
- 708 Miller Lite Ad.
- 709 Viz Slideshow
- 716 Gorezone Slideshow - YUK!!
- 719 Kylie Minogue (2)
- 720 Madonna Slideshow
- 721 Madonna Slideshow (2) - Ooh Mrs

GAMES

- 7 Tennis *
- 10 Castle of Doom
- 15 Star Trek (3) -> Two Drives reqd.
- 21 Holy Grail Adv. -> Great Text Adv.
- 23 Breakout Con. Set
- 26 Blizzard - Good Shoot 'em up
- 38 Drip - Very Good
- 39 Pipeline - Impressive
- 40 The Jar - Darn good
- 41 Jeopard *
- 45 Star Trek - The Final Frontier (3)
- 47 James Pond & Paratrold
- 48 MegaBall -> Extremely addictive
- L1 Footie - Licenceware £3.00

Charges

1 Disk.....	£1.50
2+ Disks.....	£1.00 each
Cat. Disk.....	£0.50
UK Postage.....	FREE
Europe Postage.....	£1.50
World Postage.....	£2.50

Please make payments payable to:
HyperQuick

ALL DISKS
STILL ONLY
99p EACH

Anglia PD

NEW! - ANGLIA "PLUS" PACKS. The ultimate in PD software giving you the convenience of a commercial package at a PD price. Each "PLUS" pack includes the highest quality PD programs together with full printed instructions presented in an impressive folder. The first "PLUS" pack to be released is The Business "PLUS" Pack which contains 5 disks covering a complete range of business software and over thirty pages of instructions. The complete package costs just £7.95...More "PLUS" packs to be released soon, phone for details.

BUSINESS PACK 5 DISKS £4.95
Text-Plus v2.2E (Word pro), 4 databases including RIM, Clerk (accounts), Spreadsheet, MCAD (graphics), + 2 Spellcheckers.

DESKTOP VIDEO PACK 4 DISKS £3.96
Outstanding collection for video producers, includes Rolling Credits, Slideshow, Video Backgrounds, Special Effects, Pattern Generator and more!!!

PROGRAMMERS PACK 5 DISKS £4.95
Forth, Modula 2, Lisp, Logo, Pascal, North C v1.3 + C Manual disk.

NEW! HOME MANAGEMENT PACK 3 DISKS £2.97
Calendar, Mortgage, Spreadsheet, Grammar, Mileage, World Time, Budget, Chequebook, Database, Typing Tutor, Typewriter, Grocery, List Maker, Home Banking.

BEGINNERS PACK 4 DISKS £3.96
CLI Tutorial, Quick Copy, E.S.A. Utilities, Disk Master v3.0.

CLIPART PACKS 1, 2 + 3 5 DISKS £4.95
3 different packs of 5 disks, all full of the very best clipart for DPaint etc.

FONT PACK 1, 2 + 3 5 DISKS £4.95
3 different packs of 5 disks, pack 1 contains: Publisher fonts, various fonts, fonts disk 2, Cosmopolitan fonts, large fonts (loads of great fonts for DPaint etc.)

NEW! ANGLIA COLOURFONTS 5 DISKS £4.95
Contains 5 disks full of original colourfonts produced here at Anglia, ideal for captions, titles, etc. Use with DPaint III.

ADVENTURE PACKS 1 + 2 5 DISKS £4.95
Pack 1: Holy Grail, Golden Fleece, Castle of Doom, Return to Earth, World, Colossal, Adventure Writer, Pack 2: Dragon Cave, Moria, Rings of Zon, Imperium Romanum, Larn V1.2.

CARD & BOARD GAMES 4 DISKS £3.96
Cluedo, Cribbage, Monopoly (English version!), Mastermind and much more!

ULTRA GAMES PACK 5 DISKS £4.95
Seven Tiles, Ballooney, Mayhem, Battleforce, Arcadia. All of these games have received rave reviews from Amiga magazines.

NEW! GAMES GALORE PACK 5 DISKS £4.95
Over 30 Games on 5 disks! Includes great games such as Sky Fight, Dad, Trek Trivia, Five-in-Line, Diplomacy, Chess, Monopoly, Othello, Space Age, Air Traffic Control, and loads more!

UTILITIES PACKS 1, 2, 3 + 4 5 DISKS £4.95
4 different packs with all the utils you will ever need! Pack 1 contains: Chet Solace disk (26 utils), Diskmaster v3.0, Darkstar Utilities 2, 3 & 4.

ADULTS PACK 1 5 DISKS £4.95
5 disks full of "animations", 18 and over only.

ADULTS PACK 2, 3 + 4 5 DISKS £4.95
3 different packs of five disks full of "slideshows", 18 and over only.

EDUCATION PACK 1 5 DISKS £4.95
German, Globe, Geotime, Drawmap, Evolution, Clouds, Formula, Airfoil, Gravity Sim, Weather, Wave Maker, World Data Bank and more! (This pack is one of our best sellers and is incredible value for money).

Please note: all pack disks may be bought singly at 99p!

SINGLE DISKS AT ONLY 99p!

BUSINESS

- B301 Banks (Home Accounts)
- B303 Flexibase (Database)
- B304 Wordwright (Word processor)
- B305 Visicalc (Spreadsheet)
- B306 U-Edit (Great word processor)
- B307 Journal (Good home accounts)
- B322 600 Business Letters (All ready to go)
- B323 Database Master V2

UTILITIES

- U401 Power Packer 2.3B (Superb Cruncher)
- U402 Master Virus Killer v2.1 (A must)
- U408 Freud (Take the test!)
- U404 A-Gene v3.125 (Latest Family Tree)
- U405 ST + C64 Emulators + MessyDOS
- U406 Jazzbench (upgraded Workbench)
- U407 WB2 (Workbench v2.0 lookalike)
- U471 X Copy III (The ultimate copier)
- U413 Sid v1.6 (makes you a master of CLI)
- U438 Spectrum Emulator (9110 Amiga Shopper)
- U465 Antiflicker (eases high-res flicker)
- U476 Golf Performance (Record golf stats)
- U472 Commu disk (total modem control)

U461 Cryptic utils (inc. Diskmaster)

GAMES

- G620 Pipeline (commercial quality)
- G659 Turn + Tricks
- G632 Tennis
- G602 Megaball (The best breakout game)
- G673 Trucken (Run your own company - 2 disks)
- G672 Air Warrior (Good flight sim)
- G607 T. Richter Star Trek (2 disks)
- G641 Star Trek (3 disks)
- G624 Blizzard (Superb shoot-em-up)
- G671 Mental Images (9/10 3 great games)
- G651 Eat Mine
- G652 Dynamite Dick
- G670 Zeus (Very addictive)
- G663 Sealance (great sub simulator)
- G662 Boing the Game (2)
- G655 Crossword Creator
- G660 Wordsquare Solver
- G668 Fruit Machine
- G674 Wizzys' Quest

CHILDRENS

- C701 Learn + Play (2 disks)
- C702 Train Set
- C703 Talking Colouring Book
- C704 Simon Says/Space Maths
- C705 Treasure Island
- C706 Snakes + Ladders
- C707 Pair It (Play it with the kids!)
- C708 Cross Fire (Fun & addictive)
- C709 Pixie Kingdom (2 disks)
- C711 Wacko in Wonderland (Like Dizzy!)

GRAPHICS

- GR801 C-Light (Ray trace)
- GR802 DKB Trace (Ray trace)
- GR803 Slide Show Construction Kit
- GR819 Amos Paint (v. good paint prog.)
- GR805 Mandelbrot Generator v1.85
- GR821 Spectrapaint (serious DPaint rival)
- GR807 Graphics Utilities Disk
- GR828 HamLab (Great Picture Processor)

MUSIC

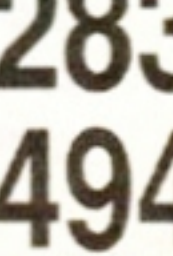
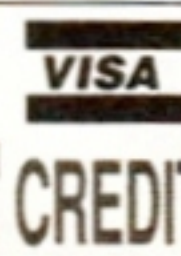
- M901 Med v3.0
- M902 Sound Tracker Pro
- M903 14 Sample disks for above
- M919 Kefrens Jukebox
- M920 Future Composer



PUBLIC DOMAIN SOFTWARE

ANGLIA PUBLIC DOMAIN LIBRARY
Anglia House, 115 Ranelagh Road, Felixstowe, Suffolk, IP11 7HU

TELEPHONE 0394 283 494



Simply phone your order through or send a cheque/postal order. Please add 60p to cover post and packing.

continued from page 124

INTUIMENU V2.0

Amiganuts disk 1075

This is an Intuition-based menu program which allows you to run any program from the Workbench, even programs which have no icons. This is an available process on Workbench 2.0 machines, of course, but 1.3 users have no recourse but to use the CLI. This system allows you to set up a special customised menu, and is a lot like the program selector program used by many disk magazines written by Nico Francois. *IntuiMenu* was written by Nick Lewis, and the system runs as a normal Workbench window, using all the normal gadgets and fitting in with any other programs you might be running.

Value for money6/10

MASTER VIRUS KILLER 2.2

Amiganuts

A stonking new version of one of the most powerful virus hunter/killers on the market. Over 150 viruses are recognised, and the program also includes link virus, bootblock and even disk validator virus checker/killers. This is still the best quality, most up-to-date virus checker you can buy, and I strongly recommend that you get a copy.

Value for money10/10

APPLICATIONS

'Applications' is becoming such a loose term these days. I tend to think that an application program is anything you can use as a tool, for whatever purpose – traditional or original. The apps on show this month fall into both categories.

WORDS V2.0

Amiganuts disk 1073

Words is a word-finding utility for puzzle players, written by Mark Meany especially for Amiganuts. The shareware version is limited to a mere 10,000 words, and the full version costs just £5.

The program can find anagrams of a given word, make words from a given word, and guess at a word of which only a few letters are known. The applications of such a program are obvious, in the fields of crosswords and puzzle solving. Not only can you solve crosswords but obviously you can create them too, as you can input the letters you have to play with and let the program find a matching word.

All the functions of the program are activated by pushing on-screen buttons with the mouse. Just type in the word you want to trap for, and off the program goes, searching its

```
NorthC Front End v1.00 @ M.Meany 1991

#include <stdio.h>

main()
{
    int sum,i;

    printf("I add all numbers from 1 to 100\n");

    sum=0;
    i=1;
    do
    {
        sum=sum+i;
        printf("Subtotal for %d. value: %d\n",i,sum);
        i=i+1;
    }
}
```

A new front-end makes NorthC far easier to use.

database until it finds a match. An unusual program for sure, but a very well put together and original one.

Value for money7/10

PCQ PASCAL

Amiganuts disk 1113

NORTH C

Amiganuts disk 1112

Both these disks are the regular PD C and Pascal compilers you know and love, but with an identical front-end and text editor program bolted on the front. The front end part of the programs was written by ACC editor Mark Meany, and a fine job it is too. Now you can compile and link your programs with the minimum of fuss, and even type them in using a pretty good editor too. The editor features clear, load and save, insert file, print, find, find next, find previous, go to lines, top, bottom, compile and run. A basic editor to be sure, but not a bad environment to write and run your C and Pascal programs.

Value for money9/10

ACC ASSEMBLER V1.0

Amiganuts

An assembler package using the Mark Meany front-end text editor, and tying together the A68K PD assembler program with the *Blink* linker program. An excellent companion to the *Amiganuts Coders Club* disks (see later), as you can then whip source code off the disk, compile it, run it, change it, compile it again and so on. The amazing thing about this assembler is that it works without any tinkering and messing about. I compiled one of the example programs – and there are a lot of them – and it ran straight away. With Shell-free operation, this represents one of the easiest and cheapest ways into 68000 assembly language.

Value for money9/10

MUSIC

The music demo field has become a little thin on the ground lately. All the 'music only' teams (Crionics are a

prime example) have found graphics and coding people and branched out into fully-fledged demo teams. But there are still music demos out there; here are the cream of the current crop.

FOUR SEASONS

Amiganuts 1080 (two disks)

The 'value for money' rating for this will vary, depending on how well you know (and like) the original music by Vivaldi. If classical music leaves you cold, however, I'd still not pass this up, as the classics played on synths are often more accessible to the untrained or disinterested ear. That's just my opinion, and you may of course disagree. But for PD prices you can always reformat the disk!

Value for money6/10

MED V3.11B

Amiganuts

A new version of the popular *MED* tracker program. This version has all the reported bugs fixed, and also features some new samples and synthesised sounds for your library. *MED* is by far the most versatile tracker in the business, and this new version is as close to perfect as it

can get. Please support *MED*, since it is a commercial quality product being sold as licenseware, and we need more of this sort of thing. It also features some demo tunes for you to play with.

Value for money9/10

GRAPHICS

There are very few slideshows around at present, although to be honest I'm not sure that they are a good thing anyway, breeding laziness on the behalf of the producers. Most great slide artists are now with demo crews, so you'll find some of the finest still art in megademos rather than on slide shows.

SPRITE DESIGNER V1.01

Amiganuts 1102

This is a ho-hum animated sprite designer from Artwerx, good for making blocks for the *Screen Designer* (another Artwerx program). The program handles 4-colour or 16-colour sprites in medium resolution, and that's about it. If you want a more flexible program than that, then you'll have to look elsewhere.

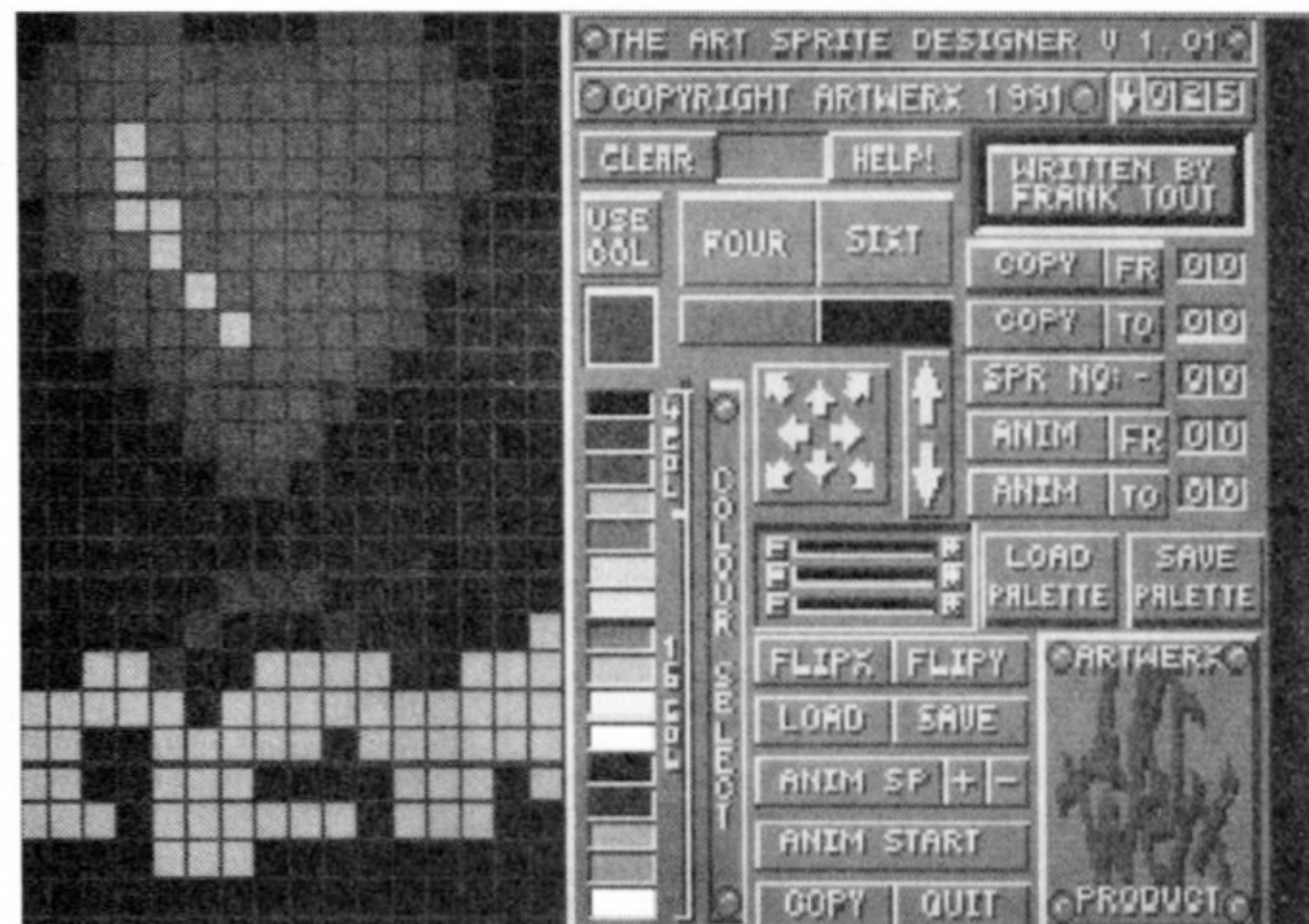
Value for money4/10

HAMSHARP AND AMIGIF

Amiganuts 791

These two programs transfer GIF to HAM pictures, and back again. *HAMSharp* allows you to view GIF format pictures in HAM mode for maximum effect. GIF is the CompuServe standard graphics file type, and viewers for a range of computers abound. *AmiGIF* is an Amiga IFF to GIF converter so it's the other way around to *HAMSharp*. Both programs support resolutions of 320 x 200 and 320 x 400 in up to 32 colours or HAM mode, and 640 x

continued on page 129



Sprite Designer 1.01 – "A ho-hum animated sprite designer."

EdLib

The new concept in PD/Shareware

The EdLib collection - a carefully chosen selection of PD, compiled by subject to save you time, trouble and money. All disks are regularly updated with the latest and best programs. Full of hints, tips and tutorials. Membership available. Unbeatable value: only £1.50 per disk!

Flying Start: To get you going on your new Amiga.

Best Utilities: The best utilities around for the new user.

Graphics Master 1 & 2: Why buy expensive commercial software? Convert resolutions, HAM, map images onto spheres and shapes and much more. (2 disks). **Now updated!**

The Compleat Iconiser: Everything you need to create ANY icon.

SPECIAL STARTER PACK: The above 5 disks for only £5.00

Animator's Delight: Animate to your heart's delight. (2 disks).

C Disks: Learn C without tears - a very thoughtfully designed presentation. (2 disks).

All Systems Go! Guide to the Amiga operating system - save ££££s on books!

Best Mandelbrot: Extraordinary Mandelbrot programs all in one package.

Fractal Laboratory 1: A comprehensive suite of programs for exploring just about every aspect of fractals. (Fractal Laboratory 2 now also out).

Cellular Automata: Game of Life, Life 3D, Automatron and many others.

Scientific Collection 1: PD Astronomy - for starry eyed stargazers.

Science Col 2: Just released! More Astronomy & Gravity. Includes the amazing Starchart

Classic Games Masterpieces: Chess, Backgammon, and other traditional board games.

Workbench Logic: Fully m/tasking puzzle games, to keep you from serious work for hours.

Hobby Horse: Family entertainment - music, puzzles, even garden design.

Our Favourite Games: Sys, Drip and Welltrix, 3 exceptional games on one disk.

*** SPECIAL 5-Disk GAME PACK:** The 4 disks above + Llamatron - only £5.00

ALSO AVAILABLE: Super Utilities, Basic Compiler (up to 50x speed increase),

ARP1.3 plus, PC-HAM conv., pC-Disk Reader, SillyBench, prolog Special Release (2

disks) and more.

NOW ALSO OUT: Science 3: Making Waves (Physics), Science 4: Chemistry

See our catalogue for the full list of EdLib compilations.

Large stock of other PD disks - only 89p! * ALL the Fish disks 1 - 470

F283 Marb. Slide * F215 MandelVroom v2.0 * F397 DKB RayTrace * F422 Pop-up- Menus (GET IT!) * F429 Scrub Headclean * F453 Lemmings demo * F456/7 Updated Ami C tut. * F477 MegaBall * F467 Multiplot: plots properly to Dot-matrix: Works with mCAD! and even ProPage etc. * F413 UEdit ultim. wordpro * F424 Turbo SubTitrer * F466 DICE * F460 Nethack adventure * F361 The Turn - very challenging puzzle. Do you think you are good?

A48+49 - Laurel & Hardy * A10a+b - NASA pics * A47 - Amy vs Walker *

A14 Juggette2 with wicked twist * D6 Phenomena - Enigma *

D3 Budbrain 2 * D4 Dragons Demo * D23 Simpsons (Decay) *

G1 Seven Tiles * G4 BlackJack! * G9 Rebound/GridRunner *

A52 The Art of M. Escher - an animated slideshow *

Our Choice: Jeff Minter's brilliant Llamatron (S/ware) G3 *

G10 MechFight adv * G12 Zeus * G14 Trix * M3 Madonna Hanky Panky *

M34 Popeye & BeachBoys! (*Pluto/Bowie) * M31 Jarre Revol *

P108 Master Virus Killer * P107 Introductory C Tutor * P142 8-colour

WBench + 300 Icons * P144 MED V3.11 - LATEST& BEST: for making Amiga music.

Loads more: Catalogue disk available for £1.00 incl p&p (or 50p with order).

High quality disks, all virus-free and copied with verify flag. Fast order processing.

UK orders add 60p p & p. European add £1.00 (£2.50 reg). All others £1.60 (£3.00 reg).

Unbeatable
Price!!
89p

Cheques/Postal Orders/International Money Orders to:

EdLib (Dept S3), Scotland Farm, Stockwood Road,

Brislington, Bristol BS4 5LU. Tel: 0272 723489

Cheap P.D.

MAIL ORDER ONLY

ONLY
70p
PER DISK

CATALOGUE
DISKS 70p
POSTAGE PER
ORDER 70p

AMIGA PUBLIC DOMAIN SOFTWARE

GAMES

- 253 NUMBER FUMBLER puzzle. Good
- 259 WATER MINE 80 levels. Excellent
- 260 GOLDEN FLEECE Text adventure
- 264 WET BEAVER ping-pong. Great fun
- 265 FLASCHBIER Maze game. V.good
- 276 BATTLE STORM Playable demo
- 286 AMIGOIDS Asteroids clone. Brilliant
- 283 CASTLE OF DOOM Adventure. Fun
- 288 MONOPOLY play the Classic game
- 296 TREK TRIVIA III for Star Trek fans
- 310 LEMMINGS Playable demo. V. good
- 311 SEA LANCE 1 meg Submarine Sim
- 313 AIR ACE 2 Shoot-em-up game Brill
- 329 THE DRIP excellent Painters game
- 330 ZEUS arrange the blocks. Fantastic
- 331 MEGABALL 1 meg Breakout. Great
- 332 LLAMATRON Shoot-em-up. Super
- 333 DYNAMITE DICK 1 meg. Fun to play
- 335 SEVEN TILES Speedball clone. Fun
- 336 TREASURE SEARCH Find it OK?

UTILITIES

- 954 BANK N Home bank accounts. OK
- 966 AMIBASE a Database. Very good
- 1014 C Manual V2 4 disks, helps you
- 1023 ZERO VIRUS III Virus Killer. Good
- 1030 A64 Commodore 64 emulator. fun
- 1042 MASTER VIRUS KILLER V2.1
- 1047 NORTH C V1.3 2 disks compiler
- 1049 PRINTER DRIVER MAKER Good
- 1050 JUST FONTS 3 disks 135 fonts
- 1055 MED V3.1 2 disks Music util. Brill!

ANIMATIONS

- 3 GYMNAST 1 meg to be seen. Good
- 8 WALKER 1 1 meg classic. Fantastic
- 9 WALKER 2 1 meg see it! Excellent
- 27 BATMAN MOVIE 1 meg fun. Great
- 45 BUSY BEE 1 meg ray traced. Good
- 56 JUGGETTE II 1 meg funny. Excellent
- 76 IRAQ 1 meg Iraq vs the world. Super
- 86 SIMPSONS 1 meg by Decay. Brill!

FISH DISKS 1 - 520

TEA BAG 1 - 54

**SAVE MONEY! IF ITS P.D. YOU WANT, SEEN IT
SEND FULL DETAILS, WE WILL GET IT FOR YOU
YOU WILL GET P.D. AT OUR PRICE
This Offer does not include Licenceware or Shareware**

CHEQUES or POSTAL ORDERS PAYABLE TO CHEAP P.D
35 COACH ROAD ESTATE, USWORTH VILLAGE, WASHINGTON,
TYNE and WEAR, NE37 2EJ

digitz

P.O. Box 144,
Mexborough, South
Yorkshire, S64 9SL
Tel: (0709) 571748
9am - 7pm Mon-Sat

**2000 Public Domain disks to
choose from. We carry the
complete Fred Fish, T-BAG &
AMOS collections**

JUST TAKE A LOOK AT THIS
SMALL SELECTION

DISK PRICES

- 1-9.....£1.25 each
- 10-19.....£1.10 each (+1 disk free)
- 20 or more....£1.00 each (+2 disks free)

Cat disk 50p
10 Blank disks £4.99

Please make cheques/P.O.'s payable to Digitz

★ ALL MAJOR CREDIT CARDS ACCEPTED ★

No minimum order, same day despatch
We pay the postage (UK)

European orders please add 20p per disk.
Rest of world add 50p per disk.

UTILITIES

- PCQ PASCAL.....a pascal compiler
- A68K.....68000 assembler
- MED V3.11.....music editor
- D-COPY.....disk copier
- RSI DEMOMAKER.....brill demo maker
- T.S.B. VECTOR DESIGNER.....ace program
- KWICKBACKUP.....hard disk backup
- M.V.K. V2.1.....virus killer
- ZEROVIRUS III V1.18.....good killer
- BOOTX V3.64.....good virus killer
- ST EMULATOR.....it works
- SPECTRUM EMULATOR.....oh! memories
- STARTREKKER.....4/8 track editor
- NOISETRACKER.....loads of versions
- TEXTPLUS 2.2E.....nice word processor
- ARP V1.3.....some useful commands
- SID V1.6.....the best directory util
- AMIBASE V3.67.....very good database
- ELECTRO CAD.....design your circuits
- M-CAD.....amiga cad program
- NOISEPLAYER V4.....a great module player
- UEDIT V2.3.....word processor
- FLEXI BASE V2.00.....neat database
- C MANUAL V2.00.....all you need for C
- MED V3.10.....new version music editor
- ANALYTICALC.....powerful spreadsheet
- ICONMANIA.....icons & tool

MUSIC

- BABY SITTING BOOGIE.....funny sampled song
- BARTMAN REMIX.....great sounds
- NEWTRONS MUSIC BOX.....very well done
- KEFRENS JUKEBOX.....select and listen
- PHENOMENA MUSIC DREAM.....very good music
- STAR DREK.....2 disk comedy
- JOURNEY INTO SOUND.....and so it is

- BARD IN A BOX.....first disk from academy
- POWERMUSIC.....power lords music disk
- FOOLS GOLD.....good music from sanity
- BANGING RAVES.....music from intuition
- STARLINE.....select and listen tracks
- TALK TO THE TREES.....great sampled song

ANIMATIONS

- ROTAMIGA (1.5meg).....neat ray traced anim
- MORE CLASSY ANIMS.....good quality
- POGO (1.5meg).....good anim with sound
- RANDI BRAZEN (1meg).....a bit x rated
- UGLY MUG (1meg).....very good digi anim
- THE MAGICIAN (1meg).....ray traced anim
- STEVES ANIMS (1 TO 5).....very tidy work
- FILLET THE FISH.....very amusing
- AT THE MOVIES (1.5meg).....brilliant
- PUGGS IN SPACE.....cute little alien

GAMES

- TRUCKING ON (1meg).....great 2 disk game
- SHAPES.....addictive puzzle game
- MEGABALL.....a great game of breakout
- LAZER-ZONE.....arcade blast em!
- ST-BASH.....good old invaders
- DESTINATION MOON.....tricky space game
- CHINA CHALLENGE.....addictive puzzles
- THE MAZE.....don't get too lost
- HOLLYWOOD TRIVA.....an interesting quiz
- INSIDERS CLUB.....wheeling and dealing
- WHEEL OF FORTUNE.....good quiz game
- DRIP.....arcade fun!
- TOMTESPEL.....two player action
- EXCALIBUR.....shoot everything
- SEA LANCE.....strategy at sea
- POM POM.....a very good blast em game
- YELP.....neat game for the kids

SLIDESHOWS

- GHOST HUNTING.....boo!
- NAGELESQUE.....brilliant artwork
- MADONNA SLIDES.....3 disks of thingy
- DEMONS III.....great music & pics
- LAUREL & HARDY (1meg).....cute 2 disker
- DIGGY PICS.....2 disks/brill pics
- NEMESIS PROLOGUE.....good artwork
- NEMESIS CHAPTER 1 (1meg).....2 disks
- UTOPIA CARTOON SLIDES.....fun pics
- HYPERDISK 1.....good pics and story

DEMOS

- TOTAL DESTRUCTION.....cronics ok!
- GLOBAL TRASH.....silents masterpiece
- BASS MEGA.....very good from France
- ENIGMA.....good phenomena demo
- REBELS COMA (1meg).....brill classic
- PULLING THE TRIGGER (1meg).....love this
- BLUE HOUSE (1meg).....good demo and game
- SCOOPX CHROMIUM.....very well made
- REBELS MEGA II.....neat gfx
- SYSTEM VIOLATION.....great vector bobs
- DO THE BARTMAN.....sounds good
- BUDRAIN II.....poor madonna
- FRACTAL FLIGHT II (1meg).....plays well
- ACME MEGA (1meg).....very fancy
- WIZZCAT TRASHCAN.....coooo!
- TROPICAL SUNSET.....well done silents
- NEVERWHERE.....neat demo from cronics
- RED SECTORS MEGA.....brill classic
- CRONICS MEGA.....very good
- VISION MEGA (1meg).....nice gfx
- UP FRONT COOL FRIDGE (1meg).....well done
- VOI DEI MEGA (1meg).....good multi part
- DEXIONS MEGA.....quite tidy
- INTERSPACE.....good phenomena demo

continued from page 127

200 and 640 x 400 in up to 16 colours. HAM mode pictures are reduced to 256 colours. This is an early version of this program, and after this time I don't really see it changing much, except to fix bugs.

AmiGIF is basically the same idea and design as *IFF2GIF*, by Steve Wilhite (and uses the modules *COMPRESS.C* and *BUILDGIF.C* from that program), but unlike that previous program *AmiGIF* will process HAM pictures as well. It might also be a bit faster processing non-HAM pictures.

AmiGIF requires a significant amount of memory to run: roughly 200-300K, depending on resolution. It can also eat over 512K for pictures in high-res interlaced mode (640 x 400). It's a slightly flakier program than *HAMSharp*, but it works. For really top quality, though, you can't buy better than *Art Department Professional*.

Value for money5/10

DISK MAGS

Disk mags are popping up like mushrooms all over the place, and the quality gets better and better with each new release.

CODERS CLUB

AMIGANUTS DISK ACC 14

The coders club is a programming disk magazine, containing source and executable code for programmers of all levels of experience. The club magazine is always jam-packed with technical goodies, and the editor Mark Meany is known for his many interesting contributions to the main Amiganuts library, some of which I've looked at elsewhere this month.

Among the contributions to issue 14 are articles on how to do area fills, fractals, RAW graphics file slideshows, multiloop graphics, a *Noisetraacker* VU meter, and various demo techniques, plus all the usual letters, source code, executables and tutorials which make this magazine such a concentrated coding experience.

Value for money8/10

TBAG ISSUE 55 AND 56

Amiganuts

The Tampa Bay Amiga Group is famous for its disks of Amiga PD, and not least for the superb presentation. The disks are brimming with interesting, and frequently brand-new, programs. Issues 55 and 56 are recent additions to the TBAG list; disk 55 contains the screen hacks *AmigaPet* and *Nightmare*, the utils *Typing Tutor Zoom* and *Super Duper Backup*, the games



The Wall is an enormous – and superb – demo from Split Dimension.

Amigatrution and *Up&Down* and a graphic called *Vibra*. My favourite program is *DriveIFF*, which allows you to 'drive' over the IFF file of your choice. For high quality PD in a magazine format, you can't really beat *TBag*.

Value for money9/10

DEMOS

There are a number very big demos out at the moment, and I'm looking at some of the biggest this month. If anyone was in any doubt that Amiga demos are a new artform, this should convince them once and for all. A six-disk demo with a running time of more than 20 minutes isn't a computer demo, it's practically a music video.

THE WALL DEMO

Amiganuts 1027 (six disks)

This is the biggest demo I've ever seen, and it's all based around *The Wall* by Pink Floyd. Not so much a megademo as a gigademo. The demo was created by Split Dimension, and the different sections work together flawlessly, with constant surprises around every bend. To mask the sometimes longish loading times, the team has put colour images and music samples in the gaps to introduce the next section. A clever ruse, and one which works very well. Each new data disk can be inserted when you see a white dot in the corner of the screen, for full and smooth running, but there is a special 'insert disk' demo if you forget to do so. The demo runs on a 1Mb Amiga, so although it has six disks the sections all fit into the computer one at a time.

Some technical info: the demo contains 330K of code, 8Mb of graphics data, 4Mb of sound and music data, and took around nine months to finish. The music was coded using *Noisetraacker* and played back using a special customised player routine to allow for nice smooth fades. Some of the wipes use a technique which divides the screen up into 5,104 squares, and turns them off randomly and very rapidly using the blitter! The team used *DigiView Gold* to grab the digitised pictures from the video of the film, and the sound for the music and effects was digitised using *Audio Master 2* at a rate of 20kHz. Some of the stark scenery was created using the PD program *Scenery* by Brett Casebolt. The 3D objects all get darker as they get further away, a

technique that the programmers call 'depth cueing'. Most of the individual sections of the demo are around 650-700K uncompressed, which is a fairly large chunk of stuff in anyone's language.

Split Dimension is a new English coding crew, and comprises Elecra on coding and graphics, Vogad on music and graphics and CalTech on ideas, graphics and music. If this is a sample of what Split Dimension can do, I look forward to seeing its next opus which, based on present performance, should be with us in about another nine months!

Value for money10/10

LANDING DEMO

Amiganuts 1103 (four disks)

This demo is a massive 5Mb animation from Tobias Richter, and it comes archived on four disks. 8Mb is really necessary to provide the headroom needed for smooth animation.

This animated film was made using the *Reflektions* ray racing software by Markt and Technik, the same program Tobias uses for his other *Star Trek*-style pictures. This is another Amiga animation demo which shows what is possible, and falls more into the category of audiovisual entertainment than being a mere demo. Tobias is one of the premier Amiga artists, and this is one of his biggest and best demos.

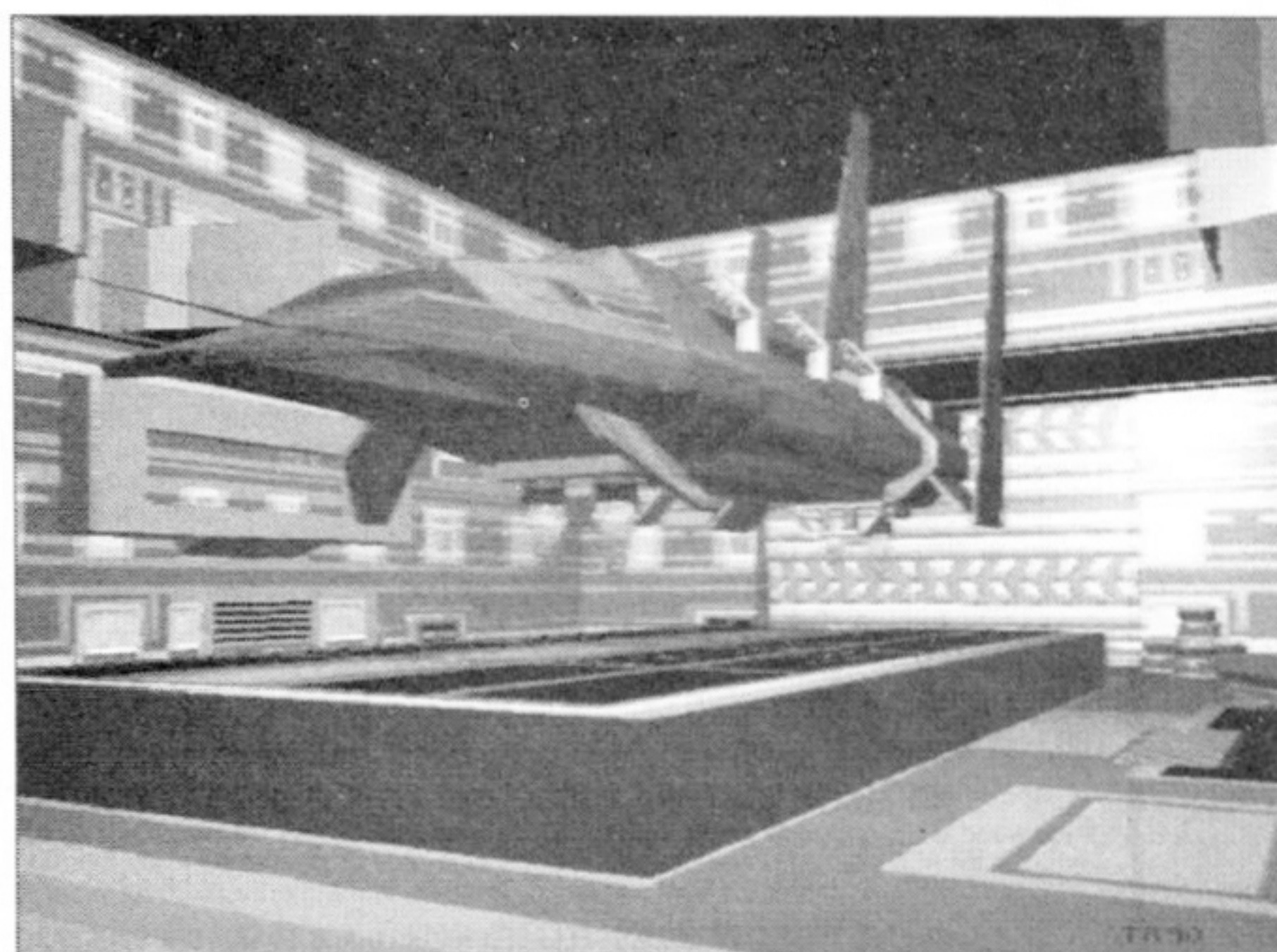
Value for money10/10

TOTAL DESTRUCTION

Crazy Joe's disk 1650

The Crionics team is one of my all-time favourites, and this is one of the most exciting demos for a long time. Lots of original copper effects, followed by some very well-done strobe cycle effects. A Crionics demo

continued on page 131



Landing Demo is a 5Mb opus from Amiga artist Tobias Richter.

500 DISKS OF FREE PD

FOR ALL MEMBERS
OF THE

CHAMPION PD CLUB

How can FREE PD be undercut!

That's right, when you join our Amiga PD club you can receive PD software absolutely free.

All you pay is 30p for the disk and a small charge for postage and packing, of around 20p.

No minimum or maximum order.

We have a good selection of demos, utility, music, business, games and animation, plus many more.

When you become a member of the Champion PD Club you will receive a free catalogue on disk containing a complete library of our public domain software, updated free of charge.

Membership for one year is just £19.95 payable to:

**CHAMPION SERVICES,
31 SOMERSET CLOSE, CATTERICK,
NORTH YORKSHIRE, DL9 3HE.**

SPARE A MINUTE?

JUST HAVE A LOOK AT THESE GOODIES!

HUMDINGER 41

Two superb disks packed to the brim with forty one quality PD and shareware games for your enjoyment.

CONTENTS INCLUDE

CHESSE
PEG PUZZLE
CHINA CHALLENGE
WELLTRIX
DEATH BRINGERS
TRIPPPIN
SUPER GRIDDER

VIDEO POKER
DILEMMA
PING-PONG
CIRCUIT WAR
TRON
KAMIKAZE CHESSE
INVADERS!

SORRY I
BALLY III
BACKGAMMON
COSMORIDS II
SHOOT-OUT
TREK-TRIVIA
DELUXE HAMBURGER

PLUS TWENTY OTHER ENTERTAINING & ABSORBING GAMES

ALL FORTY ONE GAMES FOR ONLY £4.99 INCLUSIVE

WHY NOT EXPERIENCE SCANNER 3?

THE FASTEST GROWING 2 DISK AMIGA MAG

GAMES

DILEMMA (New & exclusive)
MOSAIC (Addictive Puzzler)
TETRIS (Knockout Version)
H-BALL (Compulsive Breakout)

DEMOS & ANIMATIONS

QUARTEX SUBSTANCE DEMO
THE TUNNEL DEMO
JUGGETTE II THE REVENGE

UTILITIES

SPECTRAPAINT V3.4 (The No.1 paint package).
MENUMASTER V2.1 (Very latest with full docs).
POINTER ANIMATION (Create your very own moving masterpieces!)
Plus of course all the usual articles/news/reviews/competitions/letters/PD scene/Special offers etc. etc. IN OTHER WORDS A REALLY GREAT READ!
"Scanner is so good that my head almost exploded with excitement!" Jason Holborn, NEW COMPUTER EXPRESS.
"The last two issues provided the cream of the demos and games". Phil South, AMIGA SHOPPER. Value for money 9/10

DOSHELP & GLOSSARY.
(Two great handy aids).

OUT NOW FOR ONLY £2.50 + 50 P&P

SPECIAL OFFER, BUY SCANNER 3 & HUMDINGER 41 FOR ONLY £7.00 inc.

MEGA CLIP ART PACK. We believe this is the ultimate clip art pack for your Desk Top Publishing program. Eight superb disks containing hundreds & hundreds of pics from a great variety of subjects too many to list. All taken from Amiga/PC/ST/Apple etc and all in IFF format so can be used in D/Paint and other paint programs.

WHY PAY £25-£30? ALL EIGHT DISKS ONLY £9.99 INC.

Please make Cheques/P.O.s payable to N. JORDAN and order now from
TELESCAN COMPUTER SERVICES (AS)
Handsworth Road, Blackpool FY1 2RF



AMIGANUTS UNITED

169 DALE VALLEY ROAD, HOLLYBROOK, SOUTHAMPTON, SO1 6QX.

Tel enquiries: 0703 785680 10.30 to 5.30. Mail Order only.



1036: AMIBASE PROFESSIONAL II. (V1.2) This is an excellent database program.....£3.50
BUG-BASH: Kill the bugs, clean up the trash in the garden. A good fun game.£3.00
877: 1 ACROSS 2 DOWN. A fully fledged crossword program, for only £5.00 (Data disk no. 1 included). Data disks 2, 3, 4, & 5 now ready at £2.00 each.
1038: SUPER AMIDASH. Do you remember that good old Commodore 64 game Boulderdash? Well here is your chance to have that fun again. 1Mb.....£3.00
1068: MOD PROCESSOR V1.92. Make picture and/or music progs, adjust pic height/width. This version will load the new 8 Channel Octamed music and is excellent!.....£3.50
1075: INTUIMENU. The easiest way yet to execute all your programs. (A must).....£3.00
1083: COPPER WRITER/SCREEN DESIGNER. By Frank Tout. (For programmers only.).....£3.00
1088: WEIRD IN EDGWAYS. This is a good puzzle game by Chris Banks. 1Mb.....£3.00
1100: SCHOOL TIMETABLE CREATOR. (Print your timetable). By Keith Grant. 1Mb.....£3.00
1102: THE SPRITE DESIGNER. A good way to draw/save sprites. By Frank Tout.£3.00
1139: THE ADVANCED SCREEN DESIGNER. Similar to 1083 but far superior.....£3.50

Into coding? - Want to learn? The Amiga Coders Club is for you! ACC 1-4 is the first four compressed issues of an excellent series for coders, even if you are new to the Amiga. If you want to learn Assembly, using DevPac, (or our own new ACC special assembler disk), this is the club for you! ACC 1-4 (compressed) £1.50. The Amiga Coders Club disks are packed with source, hints, tips, advice from many of the well known coders that are on the Amiga scene today. Issue numbers 5-15 are now available. Please note, (excluding the compressed introductory disk (ACC 1-4), and no. 12) the price for each issue of the ACC disks is only £3.00. ACC 12 is our birthday issue, it is a 2 disk set, and therefore the price is £6.00. Amiga Coders Club Special! Here is a low priced assembler package for all you coders out there in Amigaland. (See the review in last months Amiga Format) £5.00

MASTER VIRUS KILLER V2.2 IS HERE!

It now recognises another 27 of the little buggers, including the virulent Sha!
This excellent program is only **£5.00**

The full two disk version of Mike Simpson's **A-GENE** is here! No need to send your order to Australia anymore! **£15.00** Europe or **£20.00** rest of the world. Add £1.50 to the above price if you require the manual to A-GENE

NO MORE WAITING! SUBSCRIBE TO THE AMIGA CODERS CLUB NOW!

If you would like to obtain the Amiga Coders Club disks as soon as they are published, why not send £33.00 and ask to go on the ACC mailing list now? We will send you each issue as soon as it's ready, (applies to issue 14 onwards).
If ordering from outside EC Countries, add and extra £6.00 for years postage

PLEASE NOTE THAT ISSUES RELEASED PRIOR TO ACC 14 MUST BE PURCHASED SEPARATELY

If you would like to take out a years subscription for the T.BAG disks, (applies to issue 50 onward), simply send £33.00 and we will send you each issue well in advance of them becoming available from any other supplier. (Note that issues 50 to 55 are ready now and will be sent upon joining). Issues released prior to T.BAG 50 must be purchased separately @ £2.00 each. If ordering from a non EC country, add extra £6.00 to cover the years postage.

THE FANTASTIC (1Mb) EIGHT OR FOUR CHANNEL MIDI COMPATIBLE Octamed v1

ONLY £10.00 (£15.00 for non-European). The price includes return post and packing. Payment in pounds sterling only, if ordering from overseas, send a bankers order/ eurocheque etc. (Credit card orders will not be accepted).
Note that V3.11 of the Public Domain four channel Med is also included in this excellent program and you can switch from 8 to 4 channels at will.

Main catalogue disk sent "FREE" with orders above £15.00 -

Please remember to ask for your free copy if you send in an order above £15.00 as we tend to forget.

Prices quoted include return post/packing/VAT -

Make cheques payable to:

AMIGANUTS UNITED

(help us by stating which magazine you saw this advert in).

Also available is the brand new 1991 update number four. Send for it now! £1.00.

(Update four contains the new DCopy V1.6 and it is a bargain!)

IMPORTANT NOTICE! Excluding the T.BAG disks, the programs detailed above are not Public Domain and purchasers may only make backups for their own use.

continued from page 129

is always an event, and this one is no exception. Worth the asking price for the heavy metal version of *The Birdy Song* at the end, if nothing else!

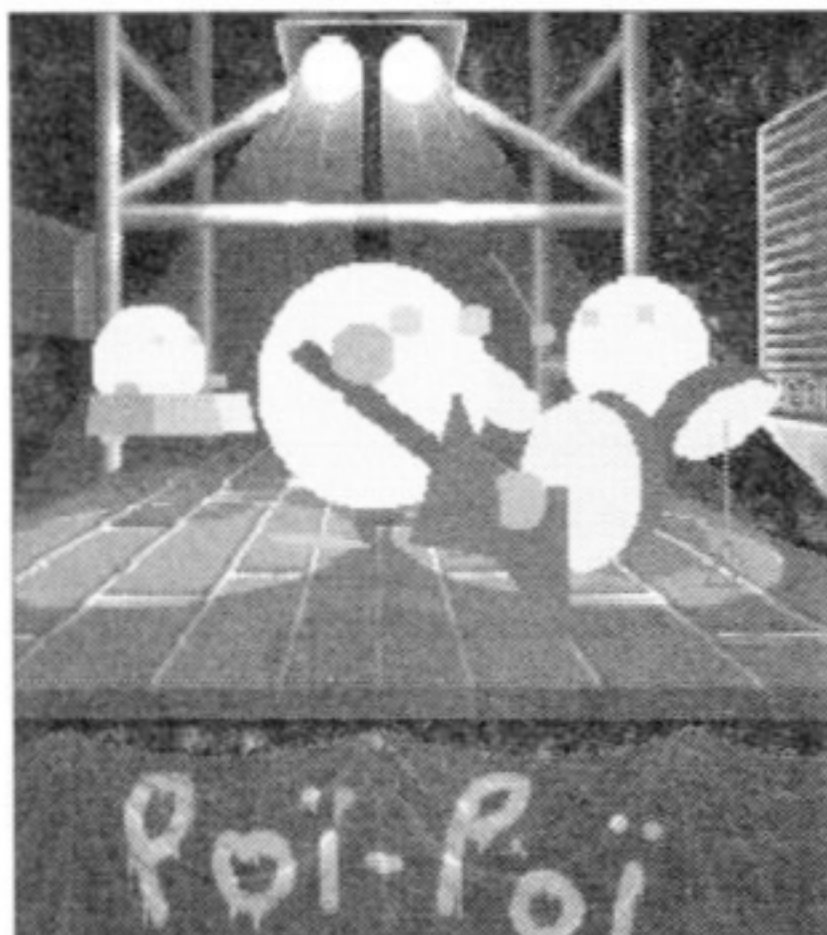
Value for money7/10

ICE

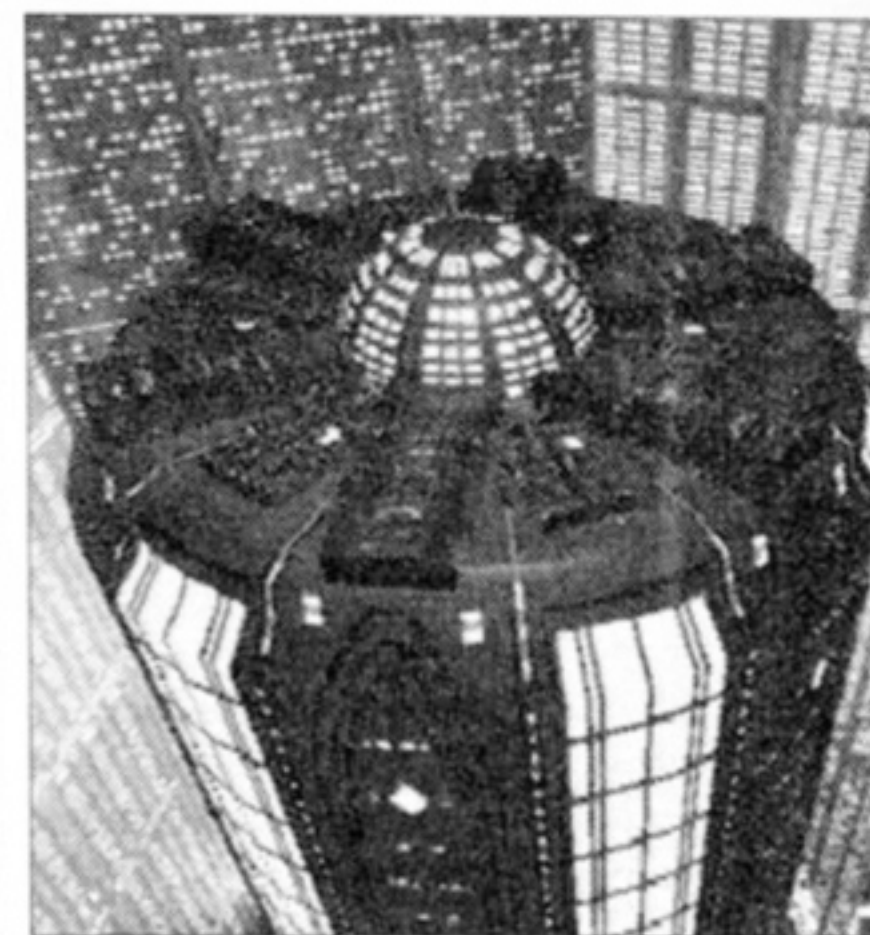
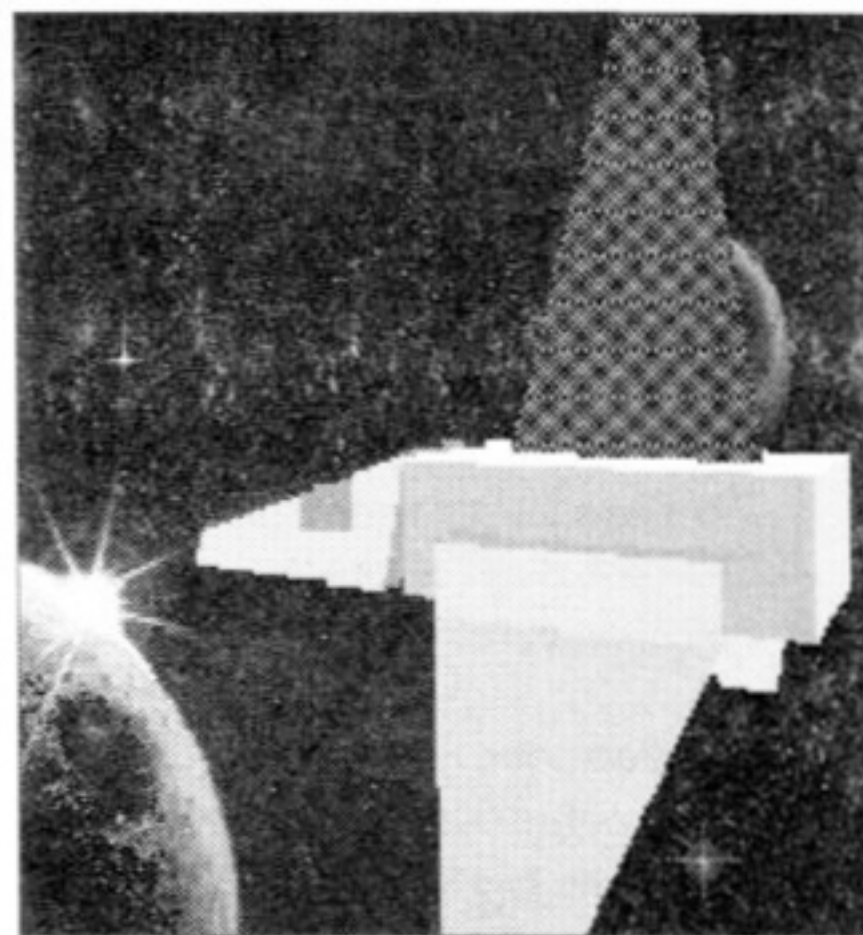
NBS disk D296

In the same way that a Crionics demo is always going to be worth looking at, a Silents demo is always worth having. As well as showing off the machine, the team has a style and additive quality all its own. I can see owners of this demo putting it on in the same way as you play your favourite video or CD over and over just to enjoy it.

The coding for this mesmerising new work is by Ronan and Performer, the splendid graphics are by Walt (some of the best I've seen for ages), and the music is by Audiomonster. Vector objects are by Rookie and Ronan, although they are all fairly standard objects, mostly ones made popular by the Elite game from Rainbird. Having said that, there are some ways of using vectors in this demo that are beyond belief. Some very exotic effects here, some huge and very fast vectors, although



Virtual World is a very impressive 3D vector demo from Tomsoft, in the form of a journey to a distant galaxy.



my particular favourite effects are the enchanting starburst fireworks, which look like a sphere of expanding white dots. There are also some very good jokes, especially if you remember seeing the demos on which the jokes are based. Good value for money, and confirmation that Silents is still up there with the greats.

Value for money.....9/10

VIRTUAL WORLD

NBS disk D295

Tomsoft has come up with a very impressive 3D vector demo, rivalling

the best work of real 3D masters like The Assembly Line. The demo contains 3D spheres and other round objects, allowing for really original objects like 3D versions of the Poi-Pois. But the really impressive part of the demo is the story of an exploration to the far side of the galaxy using a mixture of sparkling IFF graphics and vector objects.

This is one of the cleverest narrative formats I've seen, and with extremely fast animation, too. The 400K of compacted IFF graphics are by Elmer and the very strong

orchestral soundtrack is by Audiomonster, who provided all of the 200K of music on the disk. The programming was by Thomas Landsburg, with objects and animation by C-Dryk and Skrew. Additional coding was in the form of a text rendering routine (a very nice metal effect it is too), and that was credited to Performer of Silents. Come to think of it, I have seen that effect before in a Silents demo. A great demo, and very good value.

Value for money.....9/10

continued on page 132

UK PD HOUSES

Amiga Mouse PD

182A High Street
Margate
Kent
☎ 0843 228166

Amiganuts United

169 Dale Valley Road, Hollybrook,
Southampton SQ1 6QX
☎ 0703 785680

Akore Shareware

7 Fishergate Point, Lwr Parliament Street
Nottingham NG1 1GD
☎ 0800 252221

AMOS PD Library

25 Park Road, Wigan WN6 7AA
☎ 0942 495261

Anglia PDL

115 Ranelagh
Felixstowe, Suffolk IP11 7HU
☎ 0394 283494

Blitterchips

Cliffe House, Primrose Street
Keighley BD21 4NN
☎ 0535 667469

CanDo PD Library

128 Portland Crescent
Stanmore, Middlesex HA7 1NA
☎ 081-204-3954

CeN Computers

354 High Street
Chatham
Kent ME4 4NP
☎ 0634 831870

CLS

PO Box 7, Bletchley
Milton Keynes MK2 3YL
☎ 0908 640763

Comp-U-Save

PO Box 157, Hayes, Middlesex UB3 4SR

Crazy Joe's

145 Effingham Street, Rotherham
South Yorks S65 1BL
☎ 0709 829286

Digital Applications

118 Middle Crockerford
Basildon, Essex SS16 4JA
☎ 0268 553963

Edlib

Scotland Farm, Stockwood Road
Brislington, Bristol BS4 5LU
☎ 0272 723489

Electriclown

90 Notley Road, Lowestoft
Suffolk NR33 0OG
☎ 0502 566752

EMPDL

54 Watnall Road, Hucknall
Nottingham NG15 7LE
☎ 0602 630071

Goldstar Computers

PO Box 2, Tyldesley
Manchester M29 7BN
☎ 0942 895320

ICPUG

PO Box 1309, London N3 2UT
☎ 081-346 0050

Kernow Software PD Library

51 Ennors Road, Newquay, Cornwall

NBS

132 Gunville Road
Newport
Isle Of Wight PO30 5LH
☎ 0983 529594

New Wave Software

PO Box 199
Manchester M1 1JE
☎ 061-839 5378

PAS Amiga PD Club

3 St John's Walk
St Ives,
Cornwall TR26 2JJ

PCS International PD

Freepost WN5157F
Hindley, Wigan
Lancs WN2 3BR
☎ 0942 521577

PD Direct

Dept ASH, Unit 3
Railway Ent Centre
Shelton, Stoke ST4 7SH
☎ 0782 281506

PD Soft

1 Bryant Avenue
Southend-On-Sea
Essex SS1 2YD
☎ 0702 612259

Postal PD

77A Nottingham Road
Eastwood
Notts NG16 3AJ
☎ 0773 531991

Public Dominator

PO Box 801
Bishop's Stortford
Herts CM23 3TZ
☎ 0279 757692

Riverdene PDL

30a School Road
Tilehurst
Reading, Berkshire RG3 5AN
☎ 0734 452416

Sector 16

160 Hollow Way
Cowley, Oxford
☎ 0865 774472

Seventeen Bit Software

PO Box 97, Wakefield
West Yorks WF1 1XX
☎ 0924 366982

Softville

Unit 5, Stratfield Park
Elettra Avenue, Waterloooville
Hants PO7 7XN
☎ 0705 266509

Start Computer Systems

Barbican House, Bonnersfield
Sunderland SR6 0AA
☎ 091-564 1400

Vally PD

PO Box 15
Peterlee
Co. Durham SR8 1NZ
☎ 091-587 1195

Virus Free PD

23 Elborough Road
Moreton
Swindon
Wilts SN2 2LS
☎ 0793 512321

West Midlands PD

33 Springhill Rise
Wribbenhall
Bewdley, Works DY12 1EA
☎ 0229 402747/400490

Workbench PD

1 Buccleuch Street
Barrow-In-Furness
Cumbria LA14 1SR
☎ 0229 870000

GAMES

The quality of public domain games has quadrupled over just the last year; here is just one example.

LLAMATRON

Most PD libraries

This is a rare breed, something new in PD. Jeff Minter has been one of the finest game designers and coders in the commercial arena for many years. Now he's released a game into the public domain. Why? Because he is fed up with the commercial world, with its licensed games, unoriginal gameplays and high finance.

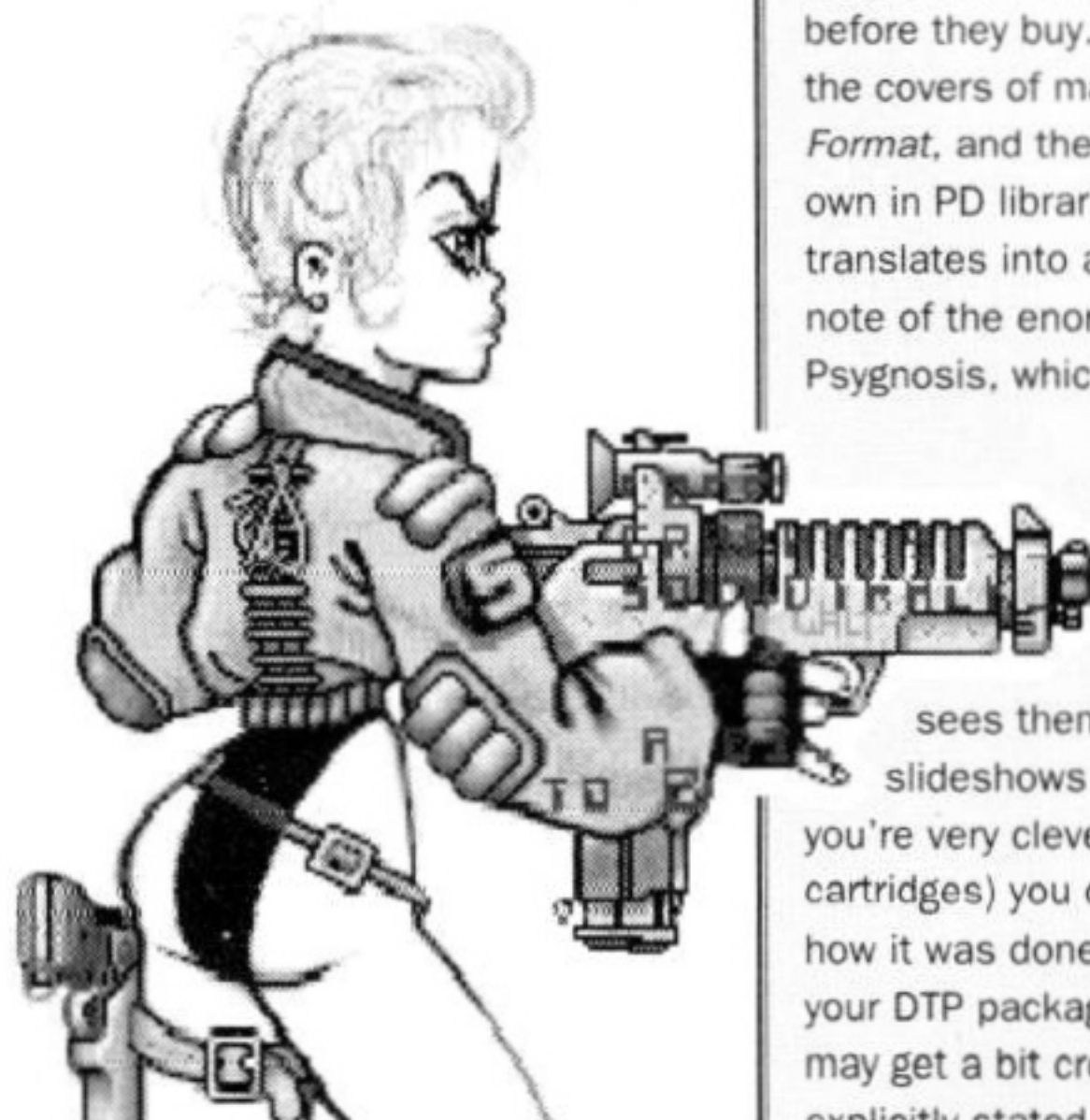
Llamatron is based on the old Williams arcade machine *Robotron*, and it's the usual arcade thrills populated by llamas, goats and sheep. The deal is that you send Jeff £5.00 and he sends you a newsletter, a new game called *Super Grid Runner*, and a poster of a llama. It's a brilliant deal, especially when you play the game and get completely hooked. It's well worth the shareware fee, and almost everyone I know who has a copy not only plays it all the time, but also paid up their fiver to Jeff Minter too! Can't be bad. Ultra-high value for money.

Value for money10/10

GOODNIGHT

If you have any questions about PD, or some viewpoint you might like to share with me, then why not drop me line at PD, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW. Or e-mail me on CIX (snouty@cix.compulink.co.uk), Prestel (219997854), Telecom Gold (74:mik2077) or The Direct Connection (uad1135@dircon.uucp).

continued on page 134



One of the characters from a Silents demo.

WHAT'S AVAILABLE?

Utilities

These are programs which help you use your computer. Some are just simple commands for your C directory for use from the CLI or Shell, while others are complete menu-driven programs to compress files, convert them from one format to another or even rescue broken disks. The best disks to look for are the collections with a selection of the best utils all squeezed on to one disk.

Applications

Some of the best programs are PD. *SID*, for example, is one of the best graphic interfaces for AmigaDOS, and it's PD (or, to be more precise, 'shareware'). *SID* is a graphic front end for the AmigaDOS file system, allowing you to move files around, delete them, rename them, copy them and re-organise your disks. In fact, I don't know a single Amigahead who would be without their copy of the program. And there are many other kinds of programs too, from business to graphics applications. Check the PD libraries before you lash out some cash on a commercial program – you may find a public domain solution which could save you pounds.

Demos

This is a new art form. The demos are created by a team of hackers, usually called a 'crew' or 'team', who get together and have a 'late night hack attack' and create a dazzling demonstration of their programming abilities. The demos can be graphics- or music-based, but they always have the feel of a pop video, and the music is generally of the dance variety, although some more exotic sonix do come out from time to time. Demo teams usually go on to be professional programmers after a while, so their demo days are usually limited. Scoopex and Silents are two of the best teams, and also the likes of Kefrens are not to be missed. Imagine a cross between a dance record, a video and a lightshow and you're getting the general idea.

Game demos

In recent years, the various major software houses have watched the PD arena growing and have noticed that lots of people buy demo disks. So they put out demos of their new releases, allowing the punters to try the game before they buy. Demos of this kind usually turn up on the covers of magazines like our sister publication *Amiga Format*, and then before long the demos turn up on their own in PD libraries. A successful and popular demo translates into a very popular game – for example, take note of the enormous success of *Lemmings*, from Psygnosis, which started life as just such a demo.

Slideshows

Some Amiga artists spend a lot of time creating works of art on their computers, which is no good if nobody sees them. So many Amiga artists make slideshows of their work for public consumption. If you're very clever (or own one of the fab new snapshot cartridges) you can grab the art and examine it to see how it was done, and you could even use it as clip art in your DTP packages. (Beware, though, some PD artists may get a bit cross if you do. Remember that unless explicitly stated, copyright remains with the artist, which

means that you can't reproduce the work without their permission.) Some of the most stunning Amiga art comes from a chap called Tobias Richter, an artist who lives in Germany. He uses a ray-tracer called *Reflections* (coming soon to the UK), and turns out some amazing stills and animations based on *Star Trek* and other sci-fi subjects. Watch out for him under the name Agatron.

Music Demos

Some PD authors are music nuts, who spend their lives churning out disks of tunes for you to play on your Amiga. Some are *Soundtracker*- or *Noisetacker*-sampled tunes from the charts, re-mixed in the Amiga. Others are synthesized tunes from the classics. Most are pretty good. If you like well-sequenced music, I think you'll be surprised at the very high quality of the tunes around on the Amiga PD circuit.

Disk magazines

Magazines on disk are not new, but there are more now than ever before. *Newsflash*, *17 Bit Update*, *Computer Lynx*, *Scanner* and *Jumpdisk* are prime examples of the type of thing I'm talking about and they are, on the whole, very good. Magazines of this type usually contain PD software, demos and music, plus a lot of graphics and text as well. The text is normally reviews of software and hardware, and is usually quite short to keep the amount of different text files up and leave space for programs too. The text is sometimes a bit on the ropery side, but that's what you get for having a writer who's an editor too. A spelling checker wouldn't hurt some of these guys, I can tell you. Not, of course, unless you hit them with the disk!

PD categories

There is some PD which is not free to all. This is:

1 Licenseware

These are programs which are licensed to specific PD houses, to prevent the free distribution of the program – although the price to the consumer is more or less the same. *MED* is a good example; it's a music program which is licensed to Amiganuts United. This program is sold by Amiganuts, and a proportion of the fee goes back to the author in Finland. This scheme works better than shareware (see below) from the authors' point of view, as the money is handed over when the disk is purchased, rather than trusting the users to pay up later.

2 Shareware

This is a branch of PD that you pay for, but are allowed to use free for a short time first to see if you like it. It isn't expensive, as the author usually only asks for between £5 and £25 for his or her efforts. In most cases it's worth paying in the end, as you get free upgrades and documentation.

There are lots of 'ware'-type schemes. Freeware is usually the name given to normal PD. Beerware was one idea where the fee for using the program was to send the author some beer. Exclusiveware is a new idea, which works a lot like licenseware. Others, like Charityware – if you keep the program you are requested to donate a sum of money to a charity – are reasonably easy to work out from their descriptions.

MEGA BLITZ!

THE ONE STOP SHOP FOR AMIGA PD SOFTWARE

PHONE 0782 208228 FAX 0782 281506

THE DISKS BELOW ARE ONLY A SMALL SELECTION FROM OUR VAST LIBRARY OF OVER 2000 DISKS

UTILITIES

PDU 10 Word Processing+Databasing
PDU 16 Air Tunnel Simulation
PDU 31 Fish#143 RIM Database
PDU 32 Fish#144 Analytic spreadsheet
PDU 43 Fish#203 Assembler & C eg
PDU 44 Fish#215 Mandelvroom V2.0
PDU 45 Fish#210 Scientific calculator
PDU 46 Fish#213 Icons(300 in 8 colors)
PDU 51 Fish#219 Astronomy program
PDU 52 Fish#52 A-Z Text Editor
PDU 60 Fish# 237 CLlprint
PDU 70 Fish 193 Keymap Editor
PDU 72 SID V1.06 The ultimate disk util.
PDU 80 Fonts and Surfaces
PDU 81 Disksalve 1.3
PDU 98 Celtics Demomaker
PDU 99 Ham Radio utils(5 disks)
PDU 101 Menu-Maker
PDU 102 Label designer
PDU 103 Icon-Maker
PDU 104 Icon-Mania
PDU 105 Crossword Creator
PDU 118 Various CLI utils
PDU 149 Icon Fun
PDU 151 Fixdisk-disk repairer
PDU 164 Games Music Creator
PDU 168 Vaccine-Booster(Virus killer)
PDU 169 QuickBase-Database
PDU 185 ANC22 (Excellent utils)
PDU 186 Falcon Bootblock Creator
PDU 194 Pman Virus Killer
PDU 200 Virus Killer Pro V2.0
PDU 207 Perfect Sound V1.93
PDU 257 Fish#349 MED V 3.00
PDU 262 MED Modules
PDU 318 Red sector demo maker
PDU 349 Master virus killer V 2.1
PDU 358 Tetracopy

DEMOS

PDD 1 Anarchy Demo
PDD 4 Deathstar Megademo(2 disks)
PDD 7 Elvira Demo
PDD 14 RAF Megademo(2 disks)
PDD 16 Robocop Demo
PDD 20 SAE Demo#25
PDD 21 SAE Demo#32
PDD 31 Anarchy"Ooh its obscene III"
PDD 51 Hacktrick#1 Arsewipe
PDD 52 Hacktrick#2Smashing day out
PDD 55 Kefrens Megademo 8(2 disks)
PDD 62 Northstar Megademo#2
PDD 70 Rebels Megademo
PDD 72 Red Sector Demodisk#4
PDD 73 SAE Demos#23
PDD 74 SAE Demos#36
PDD 75 Scoopex Demos
PDD 76 Scoopex Megademo
PDD 91 Trilogy Megademo#1
PDD 94 Vortex Megademo
PDD 96 Magnetic Fields Demo#36
PDD 97 Predators Megademo(2 disks)
PDD 107 Budbrain I (2 disks)
PDD 115 Magnetic Fields Demo#40
PDD 116 Magnetic Fields Demo#41
PDD 130 Chubby Brown
PDD 131 Crionics Demo
PDD 132 Giants Megademo(2 disks)
PDD 134 Magnetic Fields Demo#45
PDD 145 SAE Demo#31
PDD 152 Flash"NO Brain NO Pain"(2)
PDD 153 Billy Connolly Demo(2 disks)
PDD 160 Hacktrick"Rave-on"
PDD 177 Budbrain II
PDD 179 Crionics Total Destruction
PDD 186 Flash Demos#2
PPD 209 Rutger Demodisk
PDD 212 Space Pack#32

ANIMATION

PDA 9 Knight Animation(1 meg)
PDA 12 Agatron Star Trek Anims 2
PDA 13 Agatron Star Trek Anims 17
PDA 14 Puggs in Space
PDA 18 Miller Lite Advert
PDA 31 Nude Girls Anim
PDA 34 Basketball Anim
PDA 35 BFPO Slideshow(18+)
PDA 36 BFPO Slideshow#2(18+)
PDA 41 Digiviewer Slideshow
PDA 42 Dragons Lair Demo
PDA 45 Monocycle & Sportscar(1 meg)
PDA 47 Holsten Pils Advert
PDA 49 Mayfair Vol.23 no3(18+)
PDA 50 Mega Clean Show V1.7
PDA 54 NASA Graphics
PDA 56 Newtek Demoreel1(2)(1meg)
PDA 57 Newtek Demoreel3(2)(1meg)
PDA 56 Newtek Demoreel1(2)(1meg)
PDA 57 Newtek Demoreel3(2)(1meg)
PDA 58 Paradise Slideshow
PDA 61 Sabrina
PDA 63 Space Anims(1 meg)
PDA 65 Star Trek Anims
PDA 68 Walker Demo1 (1 meg)
PDA 69 Walker Demo1 (2meg,2disks)
PDA 70 Walker Demo2(1 meg)
PDA 73 Westcoast Cracker#4(18+)
PDA 74 Bodeans Bordello#1(18+)
PDA 75 Bodeans Bordello#4(18+)
PDA 76 Playboy(18+)
PDA 77 Sam Fox(18+)
PDA 78 Utopia#1(18+)
PDA 79 The Final Ecstasy#1(18+)
PDA 80 Walker Demo 2(2 meg,2 disks)
PDA 81 Ray Trace Art.DBW Render util
PDA 86 Utopia#4(18+)
PDA 89 Bodeans Bordello#9 (18+)
PDA 90 Bunsen Burner-Jet Fighter anim
PDA 92 D.Landers Sci-fi Show#1
PDA 93 D.Landers Sci-fi Show#2
PDA 110 Bruce Lee Enter the Dragon
PDA 11 Bruce Lee Slideshow II
PDA 112 Dragons Lair II Demo
PDA 114 Neighbours Slideshow
PDA 116 Terminator

MUSIC

PDM 5 MFI'Electric CLI IV'
PDM 6 Winkers song(2 disks)
PDM 9 Ride on time & Batdance
PDM 19 Bad-M.Jackson
PDM 20 Bat Dance
PDM 27 DMOB Megamusic III
PDM 28 Enemies Music III
PDM 30 Digital Concert II
PDM 31 Digital Concert III
PDM 33 Helloween'Follow the Sign'(2)
PDM 35 Think were alone now-Tiffany
PDM 36 Land of Confusion-Genesis
PDM 38 Miami Vice Theme (4 disks)
PDM 40 MFI Vangelis Demo
PDM 65 Digital Concert IV
PDM 72 Popeye meets the Beachboys
PDM 80 Digital Concert VI
PDM 82 Freddy Kruger
PDM 83 Kefrens Jukebox
PDM 84 Madonna-Hanky panky
PDM 85 Miami Vice-Croquets Theme
PDM 87 RIP Eruption
PDM 88 Slab Music
PDM 91 100 Most Remembered C64 tunes
PDM 95 Hi-Fi Demo
PDM 104 BassX#5 Power Remix
PDM 105 BassX#6 Sydney Youngblood
PDM 106 Betty Boo
PDM 109 Depeche Mode
PDM 110 DMOB Music I
PDM 111 DMOB Music II
PDM 112 DMOB Music IV(2 disks)
PDM 117 Flash Gordon (2 disks)
PDM 118 Hacktrick 'Loadsamoney'
PDM 120 Laurel & Hardy (2 disks)
PDM 128 NASP V2.0
PDM 131 Petshop Boys Remix#1
PDM 132 Petshop Boys Remix#2

BLIT - A - COPY MKII

THE ULTIMATE BACKUP UTILITY !!!

BACKS UP ALL KNOWN SOFTWARE-EVEN THE ONES OTHERS WON'T
THIS DEVICE IS PROBABLY THE MOST POWERFUL AVAILABLE
COMPLETE HARDWARE AND SOFTWARE PACKAGE

ONLY 29.95

(THIS DEVICE REQUIRES AN EXTERNAL DISK DRIVE)

DISK PRICES

1-9.....£1.50
10-19.....£1.25
20+.....£1.00

FREE CATALOGUE DISK

POSTAGE AND PACKING FREE
ON ALL ORDERS OF 3 DISKS
OR MORE, UNDER 3 DISKS
PLEASE ADD £1.00.UK MAINLAND ONLY
EUROPE ADD 25PPER DISK
REST OF WORLD ADD 50P PER DISK
PLEASE NOTE
ALL OUR PUBLIC DOMAIN IS
SUPPLIED ON TOP QUALITY
KAO BRANDED DISKETTES

CLIP ART

There is a total of 13 disks in the clip
art range.All are in IFF Format & are
ideal for DTP.There are loads of
images to choose from,ranging from
fancy borders to special occasions
& from people to animals etc etc.

All 13 disks for only £15.00

GAMES

PDG 1 Star Trek-Final Frontier(2 disks)
PDG 2 Star trek (3 disks,2 drives)
PDG 5 Card & Board Games
PDG 18 Marble Slide
PDG 19 Destination Moonbase
PDG 21 Boing the Game (2 disks)
PDG 26 Treasure Search
PDG 31 Moria
PDG 32 Legend of Farghail
PDG 33 Arcadia(Breakout style game)
PDG 34 Dynamite Dick
PDG 35 Pair It
PDG 36 Snakes & ladders/Reversi
PDG 37 Super Quiz

PACK 1

Home Buisness Pack
This 8 disk pack contains:-
Spreadsheet
Word Processor
Amiga Spell
Memo-pad
Inventory
Database etc etc
A must for home accounts!
£10-00

PACK 2

Demo Pack (10 disk pack)
Budbrain 1 (2 disks)
Budbrain 2
Scoopex mental hangover
Crionics "neverwhere"
Horizon "sleeping bag"
Palace "pulling the trigger"
Quartex "substance"
Phenomena "interspace"
Decay "simpsons demo"
A great starter pack
£11-00

PACK 3

Music Pack (10 disk pack)
Vision music masters
Crusaders "bacteria music"
Crack music disk
Jetset overload music disk
Raf megamix 1
Flash digital concert 6
Flashing bytes "sweet songs one"
Alcatraz "panic voices of energy"
Crusaders micro concert
Archaios music disk
£11-00

PACK 4

Adult pack (10 disk pack)
Sabrina,Sam Fox (2 disks)
Bodeans Bordello #2
Bodeans Bordello #3
Bodeans Bordello #10
Bodeans Movies
West Coast Cracker
BFPO #1,BFPO #2
Utopia #1
£11-00

PACK 5

Music makers pack
Protracker
Noise tracker
Star tracker
Songs disks (3 disks)
Insturment disks(4 disks)
A must for music makers
£1100

PACK 6

New release pack
This is a 10 disk pack
containing all the latest
demos form all the best
groups e.g LSD,lpec Elite
Flashing bytes etc. etc.
This pack changes on a weekly
basis,so is kept bang up to date.
A must for only
£12-00

WE ACCEPT ALL MAJOR CREDIT CARDS PLEASE MAKE CHEQUES AND PO'S PAYABLE TO P.D DIRECT
AND SEND ORDERS TO:-

UNIT 3 DEPT ASH, RAILWAY ENTERPRISE CENTRE, SHELTON NEW ROAD,STOKE ON TRENT, ST4 7SH

PUBLIC DOMAIN ON CIX

I thought it would be nice to give you a sample of the kind of talk that goes on in the PD topic of the 'amigashopper' conference on the CIX online service. It's particularly hot stuff at the moment, as there is a fervent row going on about the price of PD. Some CIXen said that the price was fair, some said it wasn't. What's your view? Perhaps some PD houses might like to log on and answer for themselves? Anyway, enjoy this loose chat, all presented with the usual wacky CIX sense of fun, and the best possible taste to boot. Obviously I've re-edited the stream a little to make it flow a bit better, but in spite of all my chopping this is the real flavour of CIX.

Oh yes, and we already have a standing arrangement in the 'letters' topic of our conference. Anyone who wants to save a stamp (and pay Telecom instead) can send e-mail to us there and have their electronic musings merged into the letters pages of the magazine.

If you'd like to use CIX and you have a modem and a credit card, call up on 081-390 1244, with 8 data bits, no parity and 1 stop bit on your terminal software, 24-hours a day.

=====
amigashopper/pd #36, from paulo
This is a comment to message 35.

It says in the box at the back of *Amiga Shopper* that you have 'cast iron editorial independence', so let's face it. If ICPUG can do it for free, why are these PD guys charging £2.50 a disk? They're obviously running a business, thus they are making money, and thus they are breaking all the rules of PD.

=====
amigashopper/pd #38, from pmiles
This is a comment to message 36.

ICPUG does do the copying for free but to members only who, in the first place have to join the club for £16. However, after that painless exercise then the disks are free but the member has to pay for the postage packing.

=====
amigashopper/pd #39, from miketodd
This is a comment to message 36.

Paul, while I agree with you in principle, ICPUG does not do it for free. Well, not strictly. You supply the disk and P&P, and a volunteer will do the copying when he/she has time and you are limited in the number of disks you can have at any one time.

=====
amigashopper/pd #40, from jwalker
This is a comment to message 37.

And then there's the advertising costs. Then there's the initial cost of stocking perhaps 1,000 PD disks, most of which they had to pay £1-2 for in the first place themselves. Even a small stand at a computer show costs close to £1,000. They don't have to be at the show, but the crowds around PD stands prove that the punters want them to be there.

=====
amigashopper/pd #41, from pcartwright
This is a comment to message 40.

I agree with every word of that, Jeff. I have never understood the beef against PD Houses covering rent, advertising, staff, lighting etc. by putting a bit on the top. Like any service, one has to pay for it.

=====
amigashopper/pd #42, from miketodd
This is a comment to message 41.

But the question is not so much is it right to allow them to make a profit (and cover costs), but is it right to allow them to make a profit out of other people's copyright works? Many pieces of software actually state that it is freely distributable provided that no more than a nominal charge is made or that no profit is made in the distribution.

=====
amigashopper/pd #44, from snouty
This is a comment to message 39.

The main reason I can see is that these guys have paid out n.000 quid on a disk duplicating machine, and they pass this cost on to the customer. There are some PD folk who sell mostly 'licenseware', where a proportion of the cost is sent to the author, which I do agree with.

=====
amigashopper/pd #48, from paulo

No one said PD software has to be free. What is true, though, is that no profit should be made from the sale of PD software. People making their living from the sale of other people's PD software is wrong. Those who have written the software have done so in their own time and without profit, and they have also requested that those who distribute the software do the same.

=====
amigashopper/pd #77, from mat
This is a comment to message 36.

I don't think they are breaking the rules of PD - if it is PD you can do whatever you like with it, sell it for 200 pounds, there is no restriction. If it is shareware then it is a different matter but most shareware authors don't mind people covering their costs; anything to get their software in the hands of as many people as possible, more chance of the thing being registered.

=====
amigashopper/pd #80, from kevinhall

Ok, enough of PD on disk. The entire Fred Fish collection is now on one CD ROM disc for 30 quid. Once the collection has been laid out and a CD master has been made, perhaps someone could tell me just where the 30 quid is supposed to go? CD duplication is fairly cheap. OK so they argue that to buy all 400 disks worth would cost a fortune, so what? You're not buying the software but the media it's on. There can be no excuse for this price. And anyone that argues there is, is more than welcome to buy all their future CD music purchases off me for the equally reasonable sum of 30 quid!

=====
amigashopper/pd #81, from tricky
This is a comment to message 80.

I believe that once you've made the master, CDs cost 1-2 quid each for the first 1,000 disks to be pressed. Obviously time is going to have to be spent mastering and compiling. The company doing it may make a lot of money out of it, but there's no disputing that it saves the individual money, time, and storage space, and is also very convenient!

=====
amigashopper/pd #90, from tricky, 221 chars, Jul 18 01:18 91

What we need to do is to slap together a CD-ROM containing the most popular PD/FD/shareware, and arrange with *Amiga Shopper* to carry it as a coverdisk. Remove the largest demand and watch the profiteers fade and die.

NO CARRIER



Can you afford **not** to join?

THE Amiga

PUBLIC DOMAIN CLUB

Yes that's right, you can now get Amiga PD for an amazing 39p per disk (Free if you supply the disk), once you have joined our friendly, fast growing and extremely popular Amiga PD Club. It must surely be the Public Domain buyers dream come true!

Lifetime membership to the club costs only £19.95. Much of this, however, will go straight back into the club to provide you with an even better service. Members will be able to choose as many PD titles as they like from our detailed catalogue disks, listing many of the Classic and Latest titles. We will bring you the very best in Demos, Utilities, Music, Art, Business, Animation, Games, Slides and much more. Just send us the blank disks & return postage and we will despatch your order to you the same day. It just couldn't be easier. As an added bonus, members not wishing to supply their own disks - don't have to. We will send your order on our own high quality disks for just 39p per title. We can't say fairer than that!

Members will also enjoy many other benefits including:

- * Many new titles to choose from every month!
- * Massive discounts on other Amiga Products!
- * All catalogue disks are constantly updated and are available FREE!
- * Superb disk magazine, FREE every month. (News, Reviews, Competitions, Letters, Classifieds and much more!)
- * A FREE games compilation to welcome all new members! A FREE mystery gift worth £14.95!
- * No minimum or maximum order!
- * Members can even request titles that we don't have at no extra cost!

Membership is usually priced at £29.95 a year, so apply now and take full advantage of this extra special offer. Remember, you can have LIFETIME membership for an incredible £19.95! Even your first order could save you £££s!

To become a member, simply fill out the form below and send with a Cheque/Postal Order to:

P.A.S. Enterprises, Amiga PD Club, 3 St. Johns Walk, St. Ives, Cornwall TR26 2JJ, England.

Join now. We promise you will not be disappointed

**The Lowest
Priced PD
Library in
the U.K.**

Please enrol me as a member of the AMIGA PD CLUB and rush me my members pack and membership number. I enclose a Cheque/Postal Order for £19.95 payable to P.A.S. Enterprises.

Name..... Address.....

Postcode..... Telephone.....

**FAST
FORWARD
SERVICE**

YOU'VE TRIED THE REST NOW TRY THE BEST!

P.D. POWER.

**ONLY
99P EACH
SPECIAL
OFFER.....
80P PER DISK**

DEMOS

PDA64 Walker Demo #1 (1 Meg)
PDA66 Walker Demo 2 (1 Meg)
PDA312 Walker Demo 3 (1 Meg)
PDA69 Neighbours Slideshow
PDA62 Holsten Pils Advert
PDA82 Madonna (18+)
PDA53 Final Ecstasy (18+)
PDA321 Budbrain Megademo (2 Disks)
PDA394 Red Sector Megademo (2 Disks)
PDA395 Garfield Demo
PDA318 Tron The Light Cycles (1 Meg) 2 Disks

PDA320 Budbrain Megademo 2. Well 'ard.
PDA315 Iraq Demo
PDA313 Good Morning Vietnam
PDA396 Anarchy System Violator
PDA75 Party Demo
PDA85 Stars Wars 2
PDA59 Sam Fox (18+)
PDA73 West Coast Cracker No 4
PDA108 Hifi Demo
PDA77 Graphics Demo (18+)
PDA68 Knight Animation
PDA35 Bodeans Bordello # (18+) No 4
PDA39 Bodeans Bordello #1 (18+)
PDA33 Bodeans Bordello #9
PDA517 Advanced Ham Invasion

MUSIC

PDM53 Amazing Tunes 2 (3 Disks) 1Meg
PDM121 Roger Ramjet Remix
PDM317 D-Mob 2
PDM316 D-Mob 4. 2 Disks
PDM390 Amiga Chart Mix 5
PDM120 D-Mob 3
PDM387 Derek & Clive (2 Disks)
PDM342 Digital Concert 2
PDM343 Digital Concert 3
PDM344 Digital Concert 4
PDM345 Digital Concert 5
PDM346 Digital Concert 6

PDM411 Ben Elton (XXX)
PDM68 What Time Is Love
PDM48 Technotronic Megamix
PDM511 The Simpsons. Do The Bartman (3 Disks)
PDM515 Shadow Of The Beast Music
PDM666 Jarre Revolutions
PDM756 Dirty Dancing
PDM842 Twin Peaks
PDM100 Miami Vice Theme. 4 Disks
PDM102 Miami Vice Crocets Theme
PDM114 Pet Shop Boys Remix #1
PDM118 Pet Shop Remix #2
PDM84 Black Box. 2 Disks
PDM110 Ride On Time/Bat Dance
PDM99 Noiseplayer V2.40

UTILITIES

PDU430 Soundtracker Collection (3 Disks)
PDU414 Uedit Word Processor
PDU416 Ultimate Copier & Virus Killer Disk
PDU418 Clip Art, Animals, Cartoon, Misc, People and Zodiac
PDU420 C-Light (1 Meg)
PDU422 North C 1.3 (2 Disks)
PDU425 Rippers, 45 music on 1 value disk
PDU424 Pagesetter Clip Art on all topics
PDU398 Amos Demo Disk
PDU371 Dope into Maker. Make own demos
PDU373 Ultimate icon disk. Icon & Editors
PDU391 Pascal PCQ1.1
PDU505 S.I.D. Cli Utility
PDU501 Ghost Writer & Rainbow Writer (Demo Maker)

GAMES

PDG11 Star Trek 3 (2 Disks)
PDG13 Board Games, Monopoly etc...
PDG14 Wheel Of Fortune. Good Game
PDG17 Tennis (1 Meg)
PDG19 Psuedo Cop Game
PDG21 Paranoid (Breakout Clone)

**FAST
FORWARD**

ALL TITLES ARE ONLY 99P PER DISK. IF YOU * BUY MORE THAN 12 TITLES, WE WILL ONLY CHARGE 85P PER DISK*. PLUS A FREE DISK AFTER EVERY 10th TITLE BOUGHT. Please make all cheques/PO's payable to: P.D. Power.

■ Send all orders to: **14 KENT ST, FLEETWOOD, NR BLACKPOOL, LANC'S, ENGLAND, FY7 6BX**

P.D. Power. has a fast and forward service. Back in the post the same day. A catalogue disk is available for 70p or free with orders of 2 disks or more. Please add 50p p & p to total. Europe £1.50. Rest of World £2.50

CENTRAL SCOTLAND'S PREMIER P.D. LIBRARY

FREE CATALOGUE

GAMES

G052 Megaball
G064 Airace/Sealance
G063 Sierra Solutions
G061 Tanx/Rollerpede/Amigaroids
G060 Empire
G058 Shapes
G057 Truckin On (2)
G056 Attic Attac
G055 Battle Pong
G054 Space Blitz
G049 Mechforce 3.71
G047 Wet Beaver Tennis
G045 Dragons Cave
G007 Ten Game Compilation
G009 Tennis
G001 Learn and Play (2)
G003 Pipeline
G010 Train Construction Set
G012 Pseudo Cop
G014 Boardgames
G020 Cardgames
G027 Monopoly
G021 Chess Compilation
G024 Property Market Game
G032 Return To Earth
G034 Diplomacy
G041 Cluedo Compilation

UTILITIES

U173 Desk Top Publisher (German Text)
U174 Talking Colouring Book
U172 Virus Encyclopedia
U158 Spectra Paint 3.2
U159 Flexibase 2.0
U160 D.Paint Cartoon Brushes
U164 R.S.I Add On 1
U165 R.S.I Add On 2
U169 Vector Designer
U167 PC Emulator

FREE CATALOGUE

U168 600 Business Letters
U170 Icon Magic
U171 Messy-Sid
U144 Quick-Bench
U145 Golf Scorer
U146 Ham-Lab
U148 Printer Drivers
U150 Personal Journal
U151 Personal Address Book
U142 Med 3.11
U141 Jas Ultimate Virus Killers
U133 Slideshow Creator
U132 Jas Super Utilities
U130 Amiga Tools Disk 2
U127 64/Atari Emulators
U114 Amiga Tools Disk 1
U115 MOD to Executable
U118 Executable Modules (6)
U002 System Checker
U009 M-Cad
U019 Ami-Base
U074 Business Utilities
U078 Education Pack (5)
U081 Clip-Art Collection (7)
U079 Midi Utilities
U020 Jazzbench
U023 Home Utilities
U036 Icons

DEMOS/MUSIC/SLIDESHOWS.

D105 Star Trek Megademo (2)
D102 Anti Lemming Demo (2**)
D101 Robocop Animation
D100 The Magician
D103 Propoganda (2)
D104 Plasmutex
D107 The Dating Game (2***)
D108 Seasmolytic
D109 Alpha And Omega
D110 Manic Raves (2)
D111 Andromeda Decaying Paradise

FREE CATALOGUE

M058 D-Macon Mega Tunes (3)
M059 Drums and Pipes
M050 The Power Of Love (2)
M045 Star Trek Sounds
M035 Phenomena Music Dreams
M034 Digital Debussey
M025 Floyd - The Wall
M013 Amigadeous
M015 Blues Brothers (3)
M016 Aliens (2)
S039 WWF Slideshow
S040 Invisible World Slides
S038 Debbie Harry Slideshow
S028 Dr Who
S020 Hendrix Slideshow
S011 Aliens Slideshow

AMOS PD

A221 Amos Bingo
A052 Forms Unlimited
A198 Bombs From Baghdad
A215 Fractal Workshop
A229 Multi-Paint
A231 Amok
A132 Family History database
A003 Fonts Disk 1
A004 Fonts Disk 2
A005 Fonts Disk 3
A036 Amos 1.3 Update
A146 Fruit Machine

AMOS LICENCEWARE

LPD1 Colouring Book
LPD3 Thingamajig
LPD5 Jungle Bungle
LPD8 Work And Play
LPD10 Word Factory
LPD13 Jigmania
LPD14 Play It Safe
LPD20 Wordy
LPD21 Quingo
LPD25 The Mission

* = 1 Meg. We also stock other Fletcher fonts

Fish 1 - 520

T-Bag 1 - 54

Amos 1 - 240

Amos

Licenceware

1 - 26

Pollysoft

Licenceware

1 - 13

Prices

1-9£1.25

10-19 ..£1.00

20+.....£0.89

Minimum order

2 disks.

**We welcome
international
orders.**

**TEL: 0236
737901**

**The above represents only a small selection of our collection.
Please call for new arrivals, or why not call into our showroom.
Prices include postage and packing. Payment by Access/Visa
or make your cheques or P.O.'s payable to**

Office Choice:-

Suite 14, Avon House, Town Centre, Cumbernauld G67 1EJ



FROM THE MAKERS OF AMIGA SHOPPER COMES...

Stylishly covers games, graphics, music, shareware - everything, in fact, other than the serious business stuff

Combines the rigour and professionalism of PC Plus with the style and editorial philosophy of Amiga Format

Page after fact-packed page full of stunning reviews and authoritative advice solely dedicated to the full panoply of PC leisure activities

Writes about games in an adult but still exciting manner

Program-packed cover disks: one 3.5-inch or two 5.25-inch, showcasing irresistible games and leisure demos from the leading publishers

Practical tutorials and reliable buyers' guides written by acknowledged PC experts

PC FORMAT
September 1991 • Issue Zero
The Modern Guide To Personal Leisure Computing

5 5.25-inch disks with this copy - also available with 3.5-inch disk
£3.25

WIN CD-ROM DRIVES WORTH WELL OVER £1,000

HOW TO JOIN THE SOUND REVOLUTION
Find out how a soundcard will transform your world

Q&A Get the most out of your PC with our section of essential hints, tips and tricks

THE PC FORMAT DISKS
MIG-29 SUPER FULCRUM Stunning playable demo of Domark's extraordinary new flight simulator.
...SPEEDBALL 2 Playable demo of the amazing action game from the Bitmap Brothers.

Graphics
Discover a visually stunning new dimension to your PC

Get free software
The essential guide to public domain and shareware

Massive reviews
Definitive features on all the big games

Discover the secrets of Monkey Island
Gasp! What have you done to me Threepwood?
I've simply followed the comprehensive guide in this very magazine, you grog-breathed ghoul!

The 50 best games EVER!
We name the games you won't want to miss

No Coverdisks?
Then ask for them from your newsagent.
2x5.25-inch disks with this copy.

Games, Graphics, Music, News, Reviews, Beginners' Guides, Comms, Competitions, Playing Guides, Public Domain and more - every issue

**...YOUR GUIDE TO A NEW PC WORLD.
AT A NEWSAGENT NEAR YOU FROM
THURSDAY 26 SEPTEMBER**

BUYING ADVICE FOR SHOPPERS

Whether buying over the phone or at a local store, here's our advice on how to avoid problems

BUYING IN PERSON

- Where possible, always test any software and hardware in the shop before taking it home, to make sure that it works properly.
- Make sure you have all the necessary leads, manuals or other accessories you need.
- Don't forget to keep your receipt.

BUYING BY PHONE

- Be as clear as possible when stating what you want to buy. Make sure you confirm all the technical details of what you are buying. Some things to bear in mind are version numbers, memory requirements, other required hardware or software and compatibility with your particular model of Amiga (that is, make sure you know which version of Kickstart you have).
- Check the price you are asked to pay, and make sure that it's the same as the price advertised.

- Check that what you are ordering is actually in stock.
- Check when and how the article will be delivered, and that any extra charges are as stated on the advert.
- Make a note of the date and time when you order the product.

BUYING BY POST

As with buying by phone, you should clearly state exactly what it is you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up where necessary. You should also make sure you keep copies of all correspondence both to and from the company concerned.

MAKING RETURNS

Whichever method you buy by, you are entitled to return a product if it fails to meet any one of the following three criteria:

- The goods must be of 'merchantable quality'.
 - The goods must be 'as described'.
 - The goods must be fit for the purpose for which they were sold.
- If they fail to satisfy any or all of the criteria, then you are then entitled to:
- Return them for a refund.
 - Receive compensation for part of the value.
 - Get a replacement or free repair.
- When returning anything, ensure that you have proof of purchase and that you return the item as soon as possible after receiving it. For this reason it is important that you check the hardware or software as soon as it is delivered to make sure everything you ordered is there and works as it is supposed to.

HOW TO PAY

Paying by credit card is the most sensible way, whether buying in person, by post or on the phone, because you may be able to claim the money from the credit card company even if the firm you ordered from has gone bust or refuses to help sort out your problem.

Otherwise, you should pay by crossed cheque or postal order – never send coins or notes through the mail.

GETTING REPAIRS

Always check the conditions of the guarantee, and servicing and replacement policy, so that you know what level of support to expect. Always fill in and return warranty cards as soon as possible, and make sure that you are aware of all the conditions contained in the guarantee.

BUYING PD

Even though PD software is relatively inexpensive, you should still apply the guidelines set out above, making sure that you confirm all orders as clearly as possible.

Shopping around is still important when buying PD because different houses charge different prices for the same disks. There is no set pricing structure for disks, but bear in mind that PD houses are, in theory, supposed to be non-profit making operations. **AS**

ADVERTISERS INDEX

1st Choice (Leeds)	46-47
16 Bit Centre	40
Almathera	122
Amiganuts	130
Analogic	122
Anglia PD	126
ARK	27
BBD Dust Covers	120
BCS	79
Best Prices	64
Bitcon	27
Byteback	19
C&N Computers	110
Calco Software	85
Carnell	68
Champion	130
Cheap PD	128
Commodore	9
Cortex	45
Crazy Joes	125
Database Direct	28
Dataplex	80
Datel Electronics	92-93
Delta Pi	75
Dial-a-Disk	122
Digicom	53
Digita	33
Digitz	128
Dowling	38-39
Ed-lib	128
Electriclown	126
ESP	114
Evesham Micros	54-55
Ferguson Smith	79
Gajits	106
Galaxy	68
Gasteiner	117
GPS	120
Greenwich	27
Harwoods	IFC
Hi-Soft	IBC
Hobbyte	25
Home Based Business	75
Hyperactive	126
Icpug	75
Intraset	82
Kosmos	114
Ladbroke	56
Manor Court Supplies	112
MD Office Supplies	94
Media Direct	118
Merlin	4
Micromail	100
Mike Jervis	84
MJC Supplies	48
Molmec	12
New Age	114
Office Choice	135
Omega PD	27
PAS	135
PD Direct	133
PD Power	135
PLC	84
Post Haste	106
Power	OBC, 17, 61
Redlaw	84
RGB	37
Richards Development	80
Selec	75
Snap	120
Soft Exchange	68
Soft Machine	112
Softstore	79
Star Associates	114
Surface	20
Swift	91
Telescan	130
Trilogic	14
Virgo	80
We Serve	68
WTS Electronics	103
Zone Distribution	106

PROBLEMS WITH AN ADVERTISER?

We want to ensure that buying mail order through *Amiga Shopper* is a straightforward, hassle-free experience.

Taking the advice offered on this page will help make it so. But if, despite this, you run into trouble – for example, failure to deliver goods within 28 days, without reasonable explanation – we will do our best to help sort things out.

If you have problems, simply contact our Customer Liaison Officer,

Helen Self at Future Publishing Ltd, 30 Monmouth Street, Bath BA1 2BW.

You should supply her with full details of the advertisement you responded to, which issue of *Amiga Shopper* it was in, the goods ordered and precise details of the problem encountered. She will then do her best to resolve the situation. However, please bear in mind that your first contact in any enquiry should be direct to the company you have ordered from. In 99 cases out of 100 they will be able to sort out any difficulties.



Customer Liaison Officer Helen Self will try to sort out any major problems with advertisers.

WIN • WIN • WIN • WIN • WIN • WIN • WIN • WIN

20 copies of Pen Pal must be won!

Everybody needs a word processor of some description, and now you can win one of the best for the price of a stamp

Word processors are the single most commonly-used type of software. Anyone with a printer needs a word processor, and it is important to get

a good one, as you will be spending a great deal of time using it. In this month's competition *Amiga Shopper*, in conjunction with Gordon Harwood Computers, is pleased to offer 20 of our readers each a copy of the

acclaimed *Pen Pal* word processor, worth £80.

Pen Pal is a sophisticated graphical word processor. You can import IFF images (even in HAM mode) and run text around the graphic – verging on DTP. *Pen Pal* comes with its own built-in database; using it you can store all your commonly used names and addresses, then use the mail merge feature to produce personalised copies of letters. And as you would expect from a professional-quality word processor, you can have several documents open at

once and cut-and-paste between them. The package even includes a spelling checker with a dictionary of over 100,000 words.

Many have been impressed by *Pen Pal*, including our sister magazine *Amiga Format*, which concluded: "*Pen Pal* is very special. It deserves to do well".

Now you have the chance to find out for yourself. All you have to do is read the questions below, then fill in the tear-off card bound in to this issue between pages 106 and 107, stick a stamp on it and send it back to us by October 3.

And now for the small print (which isn't any smaller). As ever, the editor's decision is final and no correspondence will be entered into. Entries must be on the official card – no photocopies are allowed. But then, it's not as if you have to cut up your magazine, is it?

Data Protection Act: the information on the entry forms will be entered on to computers for use by Gordon Harwood Computers and Future Publishing Limited. If you do not want your details so used, please make sure that you indicate this clearly on the card. **AS**

QUESTIONS

If you live in the provinces like I do, you'll be used to the local TV continuity announcers getting themselves into a terrible tangle trying to join two unconnected programmes together in a clever link. The same fate awaits the setter of questions. Rather than fall into this trap, I'll leave the link between these questions and *Pen Pal* to your fertile imaginations.

Who is responsible these famous quotations?

QUESTION 1

"This is the way the world ends, not with a bang but a whimper"

- A George Elliot
- B Peter Elliot
- C T S Elliot

QUESTION 2

"To love oneself is the beginning of a lifelong romance"

- A Oscar Wilde
- B W C Fields
- C W G Grace

QUESTION 3

"We are just statistics, born to consume resources"

- A Arnold Schumacher
- B Jonathan Porritt
- C Horace

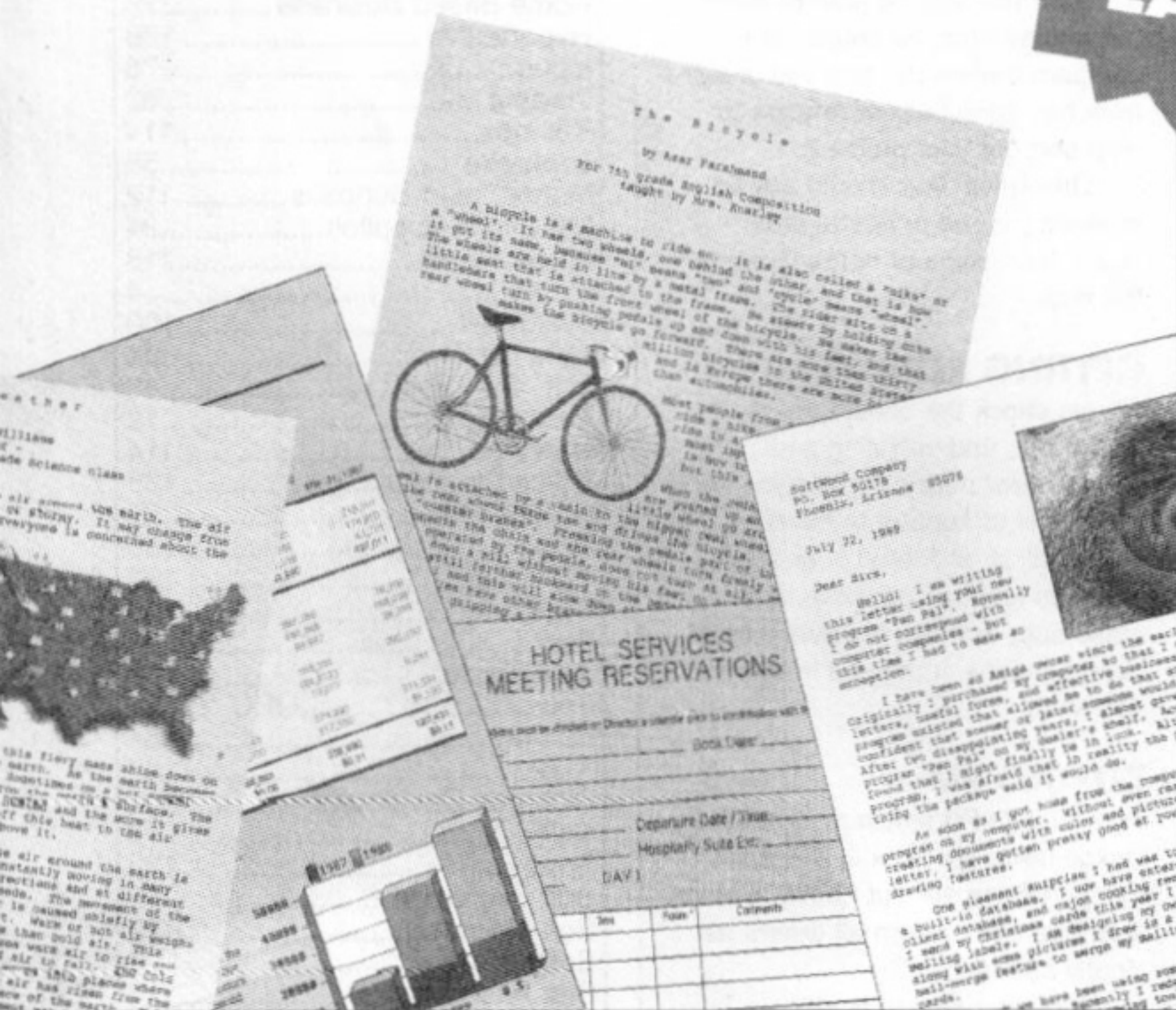
QUESTION 4

"God is subtle but he is not malicious"

- A Archbishop George Carey
- B Pope John Paul II
- C Albert Einstein

**WORTH
£80
EACH**

Pen Pal
Word Processor for the Amiga



Pen Pal: the word processor with graphics support and a built-in database.

**ENTER USING THE SPECIAL TEAR OUT CARD
BETWEEN PAGES 106 AND 107**

HiSoft BASIC

A BASIC Standard

HiSoft BASIC is the answer to your programming prayers; a fast, interactive and easy-to-use 68000 BASIC system conforming to the industry standard for the BASIC language.

HiSoft BASIC is designed to be as compatible as possible with the AmigaBASIC interpreter, while offering you a friendlier, easier-to-use and infinitely more powerful language. In addition it has many of the features of the world-standard Microsoft QuickBASIC, on the PC.

Some of HiSoft BASIC's features include:

- Structured programming, using long IFs, multi-line functions, CASE, REPEAT and procedures
- Program line numbers are optional, and alphanumeric labels can be used
- Full recursion for procedures & functions; local variables and arrays as parameters
- Five types of variables
- Program size limited only by memory
- Variable size limited only by memory
- Integer and character constants
- Compiles the majority of AmigaBASIC programs without change

Full support of the Amiga is included as standard with extensive window, screen and graphics commands. Amiga libraries can also be accessed as if they were built-in statements allowing complete machine access.

HiSoft BASIC includes full MENU support, with event trapping and powerful sprite routines, using the OBJECT keywords.

Programs can execute in their own window(s) or use the CLI window for minimum size. CLI-type programs may be easily written and made resident since they are fully re-entrant.

HiSoft BASIC is a no-limits language; string variables may be up to 16Mbytes in length and there are no limits on array sizes either (subject to available memory). Code generated is fully 68010/020/030 compatible.

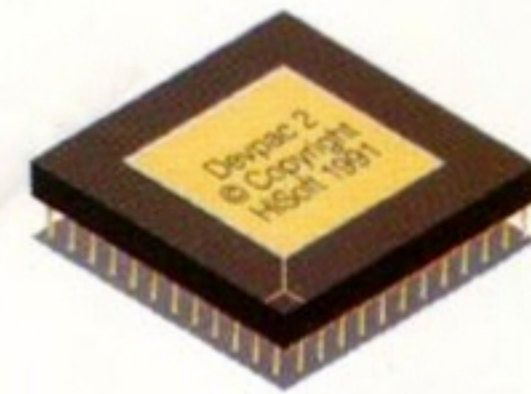
Compiled programs have no run-time overhead; all compiled programs share an Amiga library, which may be distributed with programs without charge.

Extend

An add-on package for HiSoft BASIC, Extend includes routines for handling IFF files, gadgets, sub-menus, sound, HAM mode and much more. It is supplied as a library for ease of use.

Normally HiSoft BASIC costs £79.95 and Extend costs £24.95 ... but see the coupon below for a very special offer for the two packages together!

Devpac 2



Easy Assembly Language

Devpac Amiga Version 2 is widely regarded as the most powerful, complete, assembly language development system for the Amiga. It incorporates an integrated editor/assembler/linker/debugger, together with a stand-alone assembler and debugger and all the necessary include files and many examples.



Complete with extensive ring-bound manual detailing all aspects of the package, plus debugging strategies, Devpac is the choice for beginners and assembler experts alike.

RRP is £59.95, but see the coupon below for a very special offer on this essential package.

ProFlight takes off!

ProFlight, the extremely accurate and flyable Tornado flight simulator from HiSoft, is now available for all the Amiga computers.



First released on the Atari ST where it has won a high degree of critical acclaim from reviewers and users alike, ProFlight is not only one of the most technically realistic simulators around but it is also tremendous fun to fly. As you would expect, the Amiga version has much improved sound and graphics!

You can fly peaceful reconnaissance missions or roar into attack after carefully planning your combat mission. ProFlight is supplied with a comprehensive, ring-bound flight manual.

SAS C5

SAS Institute (the parent company of Lattice Inc.) has taken over the development and sales of the Lattice C 5 compiler for the Amiga and released a new version, 5.10a.

The major features of this latest version are:

AmigaDOS 2.0 support, LSE AREXX support, improved Workbench usage, many performance improvements, support of _aligned, automatic near to far conversion, C++-style comments, compile/link options now read from an environment variable ... and more.

We believe that these improvements and enhancements in this version establish SAS C5 as the ultimate Amiga C compiler. The package includes 680x0 compiler, linker, screen editor, assembler, highly intelligent global optimiser, source level debugger, code profiler, librarian and a host of tools and examples.

SAS C5 from HiSoft costs £229 (but see our special offer on the coupon) and includes full UK technical support, which is not available from other sources.



Upgrades cost £34.95 (from version 5.0x), £79 (from version 4.xx) or £99 (from version 3.xx).

Priority Order Form

Yes, please rush me copy(ies) of

- ☐ HiSoft BASIC & Extend @ £59.95
- ☐ HiSoft Devpac 2 @ £39.95
- ☐ SAS/Lattice C 5.10a @ £199.00
- ☐ ProFlight Tornado Sim @ £39.95

Name:

Address:

Post Code:

- ☐ I enclose a Cheque/Postal Orders
- ☐ I would like to pay by:
- ☐ Access/MasterCard/EuroCard etc.
- ☐ Visa/TrustCard etc.

Card No:

Expiry Date: Signature

All prices include UK VAT and postage within the United Kingdom. Goods will normally be despatched within 2 working days of receiving your order. Call, write or fax for export prices.

Please post this coupon to HiSoft at:

The Old School, Greenfield, Bedford MK45 5DE UK.

Tel: +44 525 718181, Fax: +44 515 713716

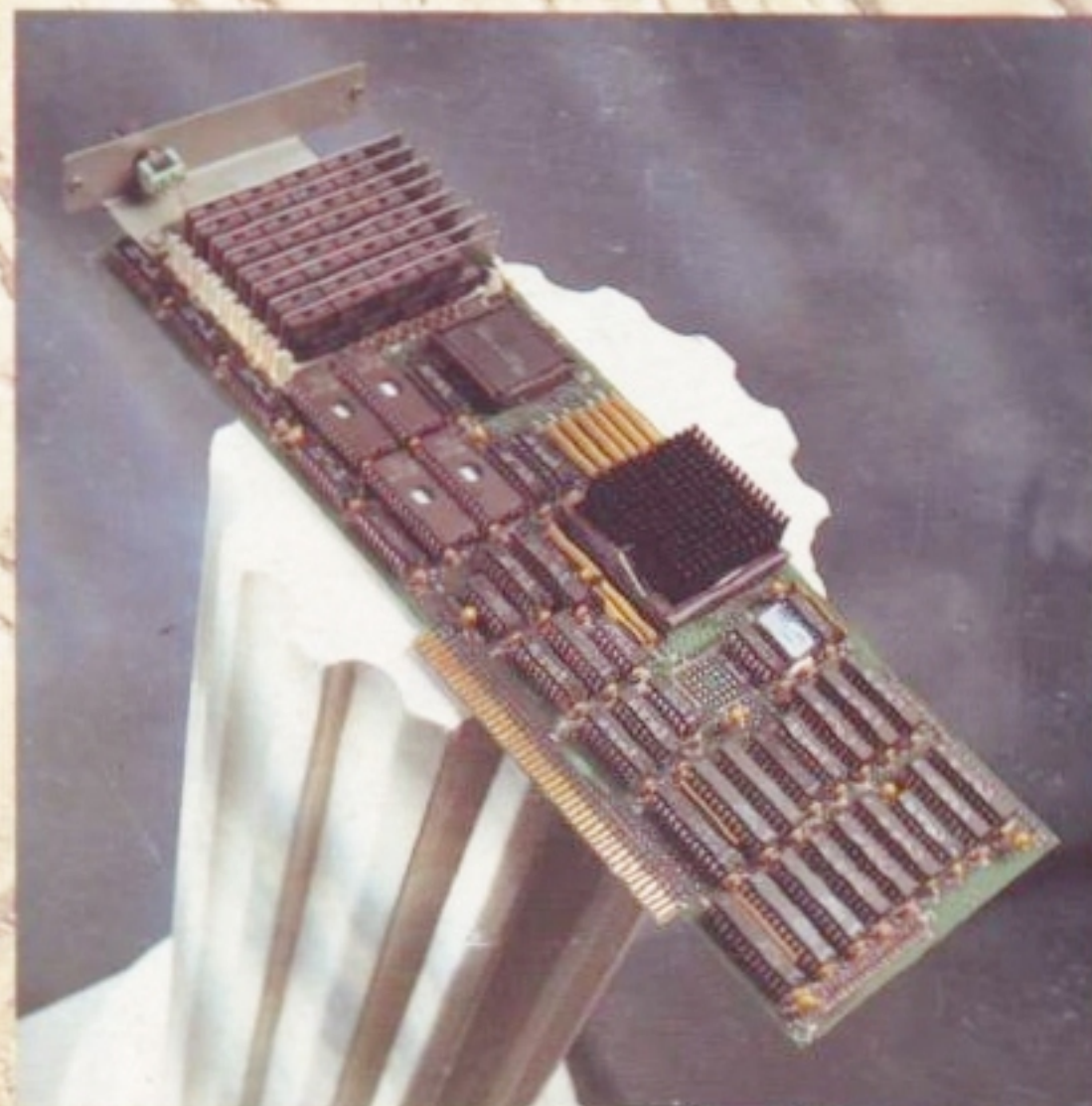
HiSoft
High Quality Software

Special Offer

Shrinks hours into minutes

68040

accelerator board



features

50MHz clock speed

Expandable up to 32MB of memory

18-25 MIPS

68882 Maths Co-processor

Compatible with Workbench 1.3

Up to ten times the performance of the A3000

Installation software disk

Easy to install

Hardware select switch to enable or disable
68040 mode and run original processor

£1999 inc. VAT
Comes with 4MB

Amiga 2000 only



SUBSCRIBE

**Guarantee your copy
of Amiga Shopper
– get it delivered**

**12 issues delivered for just £11.98
plus demo disk 3 as a gift**

Accept this special subscription offer and reap the benefits . . .

- You guarantee your copy every month – packed with practical solutions to all your Amiga problems.
- You save time and trouble – by getting it delivered
- You protect yourself against inflation – the price you pay now is guaranteed for the duration of your subscription even if the cover price goes up.
- You have a no-nonsense guarantee – you may cancel your subscription at any time and receive a refund for all unmailed issues.

Complete the reverse of this card and send it together with your cheque (if applicable) in an envelope to the following Freepost address:
Amiga Shopper, Future Publishing Ltd, **FREEPOST**, Somerton TA11 7BR.

CREDIT CARD HOTLINE: 0458 74011

WIN!

**20 copies of Pen Pal
each worth £80
must be won!**

**Yes, one of 20 copies of the superb
graphical word processor Pen Pal, worth
£80, could be yours in this month's
great competition.**

**Turn to page 138 for the details
of how to enter and win a copy of this
powerful program with its built-in
database**

For rules and conditions of entry see page 138

(TICK BOXES)

Q1 ☐ A ☐ B ☐ C

Q2 ☐ A ☐ B ☐ C

Q3 ☐ A ☐ B ☐ C

Q4 ☐ A ☐ B ☐ C

SURNAME MR / MRS / MS. _____ INITIALS _____

ADDRESS _____

COUNTY _____ POSTCODE _____

MODEL OF COMPUTER _____

PERIPHERALS ATTACHED: (TICK BOXES)

☐ MONITOR ☐ PRINTER ☐ EXTRA FLOPPY ☐ HARD DISK ☐ RAM EXPANSION

HOW DID YOU BUY YOUR COMPUTER?

☐ MAIL ORDER - RETAILER ☐ MAIL ORDER - CATALOGUE ☐ COMPUTER STORE ☐ ELECTRICAL STORE

WANTED!

Your honest opinion of Amiga Shopper

■ To help us keep improving your favourite magazine, please fill in and return this form each month

1 How did you buy this issue?

- ☐ I subscribe
- ☐ Newsagent delivered it to my home
- ☐ Asked newsagent to reserve copy
- ☐ Bought it on planned shop visit
- ☐ Just happened to see it and liked it

**2 Rate Amiga Shopper in terms of value for
money:**

- ☐ Excellent
- ☐ Good
- ☐ Reasonable
- ☐ Poor
- ☐ Ripoff!

**3 Out of ten, how much did this month's cover
make you want to look inside? /10**

**4 How much does this issue appeal to you
overall? /10**

**5 How does it compare with previous issues
you've seen?**

- ☐ Much better
- ☐ Slightly better
- ☐ About the same standard
- ☐ Slightly worse
- ☐ Much worse

**6 Rate out of ten this and any other computer
magazines you read regularly:**

Amiga Shopper _____ /10

_____ /10

_____ /10

_____ /10

**7 Out of ten, how useful did you find the
feature on word processors? /10**

**8 What do you like most and then least about
this issue?**

I most like _____

And I least like _____

Your name and address:*

Name _____

Address _____

* Leave blank if you wish – but we may want to send you details of
exclusive special offers

SUBSCRIBE AND GUARANTEE YOUR COPY

Please enter my subscription for
12 issues of AMIGA SHOPPER and send
me demo disk 3 as a gift.

Please tick as appropriate

- ☐ **UK**£11.98
- ☐ **EUROPE** (Airmail)£25.98
- ☐ **REST OF WORLD** (Airmail).....£51.98
- ☐ **WORLD** (Surface)£22.42

NO RISK GUARANTEE

You may cancel your subscription at any time and we
will refund you for all unmailed issues.

THIS CARD IS VALID UNTIL THE 31ST OCTOBER 1991

Your details (please print clearly):

Name _____ Tel No _____

Address _____

_____ Post Code _____

Method of payment

☐ Access / Visa Expiry date

Card No

☐ **CHEQUE** Please make cheques payable to **FUTURE PUBLISHING LTD** and
send with this card in an envelope to the following address:
Amiga Shopper Subscriptions, FREEPOST, The Old Barn, Somerton TA11 7BR

AS/SC/1091

AFFIX
STAMP
HERE

Pen Pal Competition
Amiga Shopper
29 Monmouth Street
Bath
BA1 2DL

NO
STAMP
REQUIRED

Amiga Shopper October Survey
Future Publishing Limited
FREEPOST
Bath
Avon BA1 2XF